

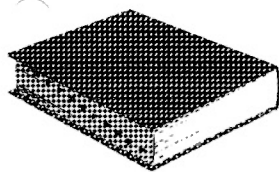
QReview

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The reference guide to QDOS and its derivatives

Volume 1 Issue 2

November 1993



Black Knight

C FOR YOURSELF

PERFECTION

PUBLIC DOMAIN

FUNCTIONality

WIN A COPY OF
DIGITAL PRECISIONS

PERFECTION

WORDPROCESSOR

INTERRUPT

sidekick

Plus Much More

QReview

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Articles submitted for publication should be on a 3.5 DD disk, or microdrive, in either Quill, Perfection, Text87 or Editor format and be accompanied by a printed copy of the article. Saved Screen dumps produced with the Sbytes command are also accepted together with screens saved by most QL drawing packages (Please indicate which package you used to produce the graphics).

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NEWS

[Thank you to all the people who send in their Questionnaire from issue 1. We had a very good percentage of return, over 30%. It was interesting to note that most people are now using a Goldcard with a QL. Several regular sections have been added as a direct response to the answers we received from the questionnaire.

The first section entitled "C For Yourself" is a section dedicated to C programming using the C68 public domain compiler. It is designed to give guidance and help on the use and understanding of C68. Ideas for future articles are very welcome, as explained at the end of the section.

Interrupt is a section on machine code programming. Through this we hope to explain techniques and "real world" experiences that do not feature in any books on the subject.

Functionality is a section on programming in SuperBASIC. It will principally be made up of small, useful, functions and procedures that can easily be adapted to any program. This was the second highest request, by the way.

By far the highest requested section was a Help section. This will be starting in the next issue and we will be publishing the answers with the questions in the same issue. If you are in need of Help, either software or hardware related, then send in the details to HELP DESK at the same address as Quo Vadis Design.

Now on to the news.....]

Dilwyn Jones of DJC has written in to clarify a few points raised in the last issue. Convert-PCX costs £10 instead of the £12.50 printed. An error in the handouts was to blame. In the review of DJToolkit the reviewer appears to have missed a point: its use in distributed programs. DJToolkit is one of the few commercial toolkits which can be included in QLiberated programs and sold or given away as PD (only when linked to a compiled program) without any form of payment. The whole point is that you do not need to rely on the recipient having the equivalent toolkit 2 routines. Also DJToolkit gives you a degree of future proofing. In the review of Banter the reviewer managed to make the printout exceed the stipulated number of pages. There are two possible reasons for this. One is the size of the paper used (Which might be less than that expected by the program) and the second is that some printers start printing a small amount from the top of the sheet, usually about 1 inch on dot matrix printers, and so end up printing on about the top inch of the page one beyond the number expected to make up that missing inch.

[The following prices are only for the product itself, for more information on postage costs and addresses

see page 10]

Jochen Merz Software has released a range of new software:-

typeset93-ESC/P2, priced at DM 69,90, is a new printer driver for Text87. It provides a driver for all EPSON printers which support ESC/P2. This includes the new Inkjet printer from EPSON the Stylus 800.

BlackKight is a mouse-driven Chess program with a host of features. See the review on page 9 for further details. Its price is DM 119,90.

QMAKE is a pointer driven Make program for the GST/Quanta Assembler package. It has many options including library-building. Its price is DM 44,90.

The Lonely Joker has been updated to version 2. It now includes Spine, Crapaud & Four-in-a-Hand patience games. The price new is DM 59,-. Upgrades from version 1 are DM 29,-.

SMS2 - The much talked about, but less seen, operating system is to see the light of day. SMS2 is part of a long term project called Ora that exists to provide very powerful computing that is easy to use. It is a complete ready to use computing environment supplied in ROM. It will be supplied with an integrated graphic user interface (an advanced Pointer Environment), a networking system, a set of access programs(derived from QPAC2) and (as a set of options) an improved "Super Basic" system known as SBASIC2. Jochen Mertz will be selling SMS2 on ROM for the Atari range of computers starting at £99. Jochen also points out that SMS2 is not SMSQ or vice versa. SMSQ is a QDOS clone, its purpose is to mimic the QL as accurately as possible.

Jochen has also sent in more information on the QVME card that turns the Atari STE and TT into a QL. There is too much information to print (included is a double sided A4 page of the most commonly asked questions together with the answers) but if you would like further details send a SAE and we will send you a copy.

TF Services , offering repairs, Minerva, Hermes and I²C Interfaces have now moved from their London address to Ascot. Their full address is given on page 10.

Albin Hessler Software will be releasing CueShell, the ultimate pointer driven desktop program for all QDOS compatible systems, around December. It supports all screen resolutions and allows graphical copying (drag and drop), included is the ability to copy complete subdirectories. It also saves the last used settings for its sorts and window sizes. You can also easily rename by just typing the new name.

Ocean Computer Services have sent in more details about their Professional Poolster program. The program evolved over several years, from the writer's efforts to keep track of pools statistics. It gradually developed with many improvements in efficiency in entering the matches and keeping track of the bookies statistics. At first only the odds published for HOMES were used but eventually three modes were incorporated, using the odds published for ALWAYS and DRAWS as well as HOMES odds. It is designed as a tool and guide for the serious punter, rather than a forecaster. It can help the user to find results, in particular the unexpected, for use on either the fixed odds coupons or on the regular pools coupons in homes of aways entries. The price is £49 for a limited period.

Software87 have now released version 4 of their wordprocessor plus4. There are two major enhancements to the package. The first is that ruler creation and editing can be made interactive. This means you can edit or create a ruler while watching the effect of changes on text. The second is the addition of a Macro language. A macro language allows the user to replace frequently used sequences of keys with <CTRL> key combinations. As an example to underline a word takes 9 key presses, these key combinations can be recorded by plus4 and you then only need to press <CTRL> plus your designated key to underline a word. Options are given to record, view, delete, save and load Macro key definitions (plus4 loads up a default file automatically on startup for frequently used macros). You can also modify existing macros by loading them into plus4 and editing the file directly.

QUBBESoft P/D alias Ron Dunnnett is working in collaboration with Terry Harman and Phil Borman to bring two new hardware products on to the market. The first is called FAST-NET which, as the name implies, provides a vastly improved network. It speeds up the network by at least a factor of ten. It will also allow networking between QL and Atari ST computers. The other project is called QUBIDE. This is an IDE Hard disk interface allowing the connection of an IDE Hard Disk upto a maximum capacity of 120mb. It includes built in software and will plug into the QL's Rom slot. Both of these products have been prototyped, the FAST-NET having been demonstrated at several Quanta and International Workshops. No firm dates or prices have been given for their launch but expect to see them in the very near future.

Di-Ren have developed a new, low cost, speech analyser called DPR020. although the name may change. This will allow you to "train" your computer to recognise and act upon your voice patterns. It is to be priced around £67.50 and includes the DPR020, a microphone, boxed speaker and full instructions that include connection details and sample programming techniques. It connects to the QL via an RS232 lead and uses a method of sound analysis called Adaptive Differential Pulse Code Modulation for a greater accuracy. It is expected to be released shortly. For further information send a SAE to Di-Ren or Dilwyn Jones Computing.

Genealogist, the family tree research program, has now been rewritten to use the Pointer Environment. Chris Boutal, the author, has taken the opportunity to include many improvements over

QL_Genealogist Second Edition, many of which were suggested by users of the old Genealogist program. Having seen the first demonstration of the program I must say it is a very worthy upgrade. It makes full use of the Pointer Environment and shows just how a well written pointer driven program can make complicated actions seem so simple and intuitive. An example of its many new features are "Pick lists". Instead of typing a place name over and over again you just press F3 or select the "Pick" option and an alphabetic list of all the place names you have entered pops up. You can then select the name you want and it will copy that name into the field. These are available for given names, family names, places, comments, sources and counties. A conversion program is included to translate old Genealogist files into the new format. The price for the new program is £60, upgrading from Genealogist Second edition is priced at £33. It is available from Dilwyn Jones Computing.

Dilwyn Jones Computing has now released Page Designer 3, the long-awaited sequel to Page Designer 2. This new version now works under the Pointer Environment and looks to be very comprehensive. It is very easy to use and is packed full of features. More news on this next issue. The price is £40, to upgrade from Page Designer 2 is priced at £25.

Screen Compression is a new program from Dilwyn Jones Computing which, as its name implies, allows screens to be saved on disk and cartridge in a compressed format, saving space. The program also allows the interchange and conversion of various graphics compression formats available on the QL. Mode conversion and colour inversion are also included. It supports 11 formats although some can only be used if the original software is present. The formats are Uncompressed (standard QL 32k screen), DJC compressed (used in Image Processor and Page Designer 2&3), The Painter (used in The Painter program by PROGS of Belgium), QLW format (based on software by A. Quigly published in QL World), Quanta format (Ron Dwight's screen compression system available from the Quanta library), Eye-Q (used in Digital Precision's Eye-Q program), CGA files (as found in the Quanta library), PCX files (common format on the PC), Graphical toolkit (Toolkit published by Pyramide), Qplus (Toolkit published by Sandy UK) and Moerel (Bag of Tricks software published by Pyramide). The price is £10.

Scanned Clipart 2 from Dilwyn Jones Computing is an assorted collection of scanned pictures suitable for most QL graphics programs. The screens have been compressed (decompression program supplied of course) to get the most on the disks supplied. The price is £10.

Dilwyn Jones Computing is now able to supply the Deltasoft range of software. This includes the flight simulator Flightdeck and the 3D graphics program, Image D. Flightdeck is a real time flight simulator based on a Boeing 737 twin jet engine passenger airliner. It provides a filled high resolution 3D image of the "world" outside and contains an accurate database of over 200 UK navigation beacons. Runway details of over 25 major UK airports are also included. The price is £15. Image D is a 3D graphics design program that allows you to produce graphical representations of three-dimensional objects and to view them in a variety of ways. These include wireframe, hidden line and shaded. Views produced on screen can be saved to a file for subsequent printing or manipulation. The price is £10.

PERFECTION

Since writing the first initial review of Perfection in QL Technical Review 7, Perfection Special Edition (Perfection SE) has been released which incorporates a series of major changes to the original program, some of which have been to remove bugs, whilst others take account of the ever increasing range of new hardware available to QL users. There have even been one or two changes which take account of various wishes expressed by existing users.

Not only has the speed of operation of the program been increased quite drastically, but users of the new Miracle Systems QXL card (which allows you to run most QL programs on a PC) will be pleased to see that the size of document which Perfection SE can handle has been increased tremendously to $(256^4) * 4000$ bytes (approximately 15Tb). Unfortunately, restrictions caused by current micro-processors in the 68000 range, actually limit document size to approximately 4,096 Mb. This new size restriction should be more than enough for the most avid author, and users will be interested to note that Perfection SE does not become noticeably slower when handling large documents (unlike Quill).

For users who want even greater flexibility in the handling of documents, the README file provided with the program, states that Perfection SE is able to utilise any system of virtual memory (whereby a disk, or hard disk in particular, can be used as an extension of the machine's memory, invisible to the user) - it is hoped that this will shortly be implemented on the QXL board.

In line with many other text editors, Perfection SE has been given a limited ability to handle more than one document at a time. Instead of allowing you to load more than one document into Perfection SE, you need to set up several copies of Perfection SE and load a different document into each copy. But surely you can do this already, simply by using multiple EXEC commands to load each copy?

In order to save memory and to utilise QDOS's native code-sharing ability (this

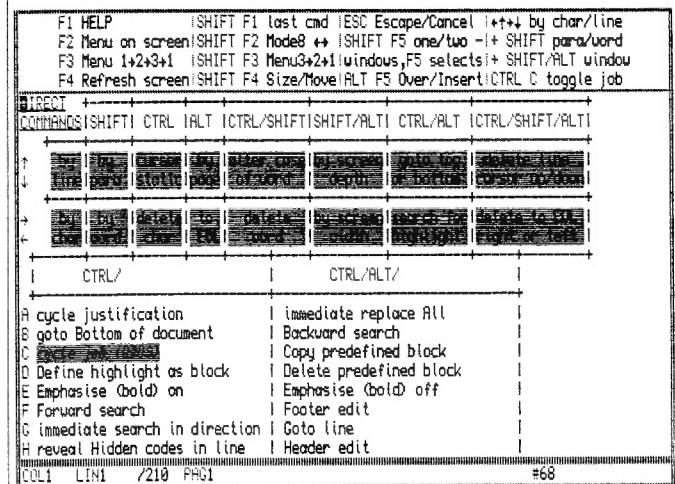
allows several copies of the same program to run from only one copy of the machine code actually being in memory), you can now supply a parameter to Perfection SE when you load it, telling the program how many copies you wish to create. You achieve this with a command similar to:

```
EXEC flp1_Perfection;'m2'
```

(This will set up two copies of Perfection SE). Both Toolkit II and the latest version of Minerva (v1.97) allow you to do this, although users who do not have either of these, should not fret, as there is a way of doing this with the Turbo Toolkit (a copy of the runtime version is supplied with Perfection SE and loaded automatically by the boot program), by using the command:

```
EXECUTE 'flp1_Perfection';'m2'
```

Note the need for quotes around the



Perfection in action

filename if you are using the runtime version of Turbo Toolkit. It is a pity that the Perfection SE manual does not mention this.

I have been asked in the past how to do this using the command 'EXEP' which Qpac2 users will recognise. This could be necessary for example, if you wanted to set up a guardian window around Perfection SE under the Pointer Environment. Again, this is relatively simple: merely use:-

```
EXEP flp1_Perfection;'m2',g
```

Unfortunately, this method of working with several documents at the same time does seem a half-hearted solution, since there are still various practical difficulties in transferring text from one document to another; something which will generally require the use of a temporary file. However, if you have a system of named pipes (eg. SYSTEM), it may be possible to transfer blocks of text using pipes. For example, go to the copy of Perfection SE which contains the block of text to be copied across, tell Perfection SE to export the text, and when presented with the filename, insert:

```
pipe_PerExp_1000
```

Now, go to the copy of Perfection SE into which you want to load the text and tell Perfection SE to load:

```
pipe_PerExp
```

This will copy across the file without the need for a temporary file to be created. I have tried to use the new pipes provided by Minerva v1.97 to do this, but unfortunately, could not get this to work - it appears that you need the output and input pipes to be open at the same time on Minerva.

Users will also be pleased to note that Perfection SE imports Quill documents much more quickly than its predecessors and once loaded, the handling of this text is not noticeably any slower than with native Perfection files. It was also nice to note that Perfection SE can now merge both its own and Quill files without any need for user intervention (previously the user needed to delete a large amount of garbage loaded with the document).

Once you have loaded your documents, the additional speed of the program has made all operations seem much smoother, although with large documents, there is still an annoying delay after the document has first been loaded, when you move off the first line, before the cursor re-appears (presumably this is whilst Perfection SE sets all of its tables). This delay has however been reduced from earlier versions and presumably reduces delays whilst editing the text - I have used a document in excess of 140,000 words from within Perfection SE and have found its speed more than sufficient for editing purposes (when using

Gold Card).

Editing has also seen various improvements both from the point of view of speed and ease of use.

Perfection SE now supports six 'environment settings'. This allows you to store various settings for the margins, tab positions, default filenames, search & replace strings, as well as the majority of the settings shown in the status line. Having set these various parameters to the required values (either by using direct keystrokes or menu commands), you can store the current environment setting by pressing CTRL/SHIFT/ALT/1-6, and then recall it at any time by pressing CTRL/ALT/1-6. Although this may sound useful (it allows you to store different environments for different documents, or even different parts of the same document), Perfection SE does not allow you to save the environment settings along with a document, and you must therefore re-enter them each time that a document is loaded. However, this can save a tremendous amount of time when editing large complex documents, provided that you remember to keep a note of the settings associated with each 'environment'.

Cursor navigation has also been amended - if the cursor is at the left hand side of the screen, any attempt to move it left, places it on the end of the previous line (this is the same as with Quill and Text87). The ALT left and ALT right keys still move you to the start and end of the current line respectively, although I would have preferred to be able to configure the action of cursor left, since this can be particularly annoying sometimes.

As a further aid to increase the speed of editing, you can also configure whether or not the attributes of the text should keep pace with the document as it scrolls up or down the screen. Turning this to OFF results in much faster scrolling and the delay until the attributes catch up with you is not too great so as to annoy the majority of users.

A major alteration to the current version of Perfection SE has been with regard to the formatting of paragraphs. Not only has the speed of reformatting paragraphs been substantially increased, but the program can now automatically reformat paragraphs as they are being typed.

You can configure the delay before reformatting takes place (ie. how long the program will wait after you have finished typing) to suit your typing style (or even turn the feature off). This system of automatic reformatting prevents the problems inherent in manual formatting, in that it is all too easy to amend a paragraph and forget to re-format it, leading to improper right justification. The ability to configure the delay before paragraphs are reformatted also helps to make this feature relatively powerful - you can decide on how the program should balance the time spent reformatting against the time spent reading the keyboard and printing the text.

Unfortunately, I find that this feature has little practical relevance when used on complicated documents because, due to the fact that Perfection SE does not attach any rulers to paragraphs, the automatic reformatting means that you can sometimes alter a paragraph to find that its margins have been reset to the current settings, rather than keeping the original settings, meaning that you have to alter the margins and reformat the paragraph anyway. I am sorry to say that even though the implementation of environments helps to alleviate this, the fact that they cannot be stored and the lack of any rulers means that I would rather do without this automatic reformatting.

Whilst on the subject of rulers, I find it surprising that the authors of Perfection SE have seen fit to ignore these important little creatures - this is especially so where TAB marks are concerned - altering the TAB settings when the cursor is part way through a document does not prevent the new settings affecting the whole of the text, which can cause havoc, unless you keep an eye on what you are doing.

The other main amendment to the editing features has been to the Search & Replace function. Some previous versions of the program distinguished between hard and soft spaces when searching for text, meaning that some occurrences of the desired string could be missed. Now, unless case sensitivity is enabled, hard, soft spaces and tabs are all treated the same. Unfortunately, unlike Text87, Perfection SE does not simply ignore soft spaces (inserted by the program for justification purposes), which means that strings can still be missed if the program has justified a line and inserted an additional space between the words. Another drawback of this function is that it does not ignore changes in typeface, so that if you change a typeface in the middle of text, the search function will only find that text if you specify the change of typeface in the search string. This can be particularly annoying when you have mistakenly pressed CTRL E instead of E (causing BOLD to switch on), and so pressed CTRL ALT E (switching

BOLD off) to rectify the mistake.

The printer driver has also been enhanced to take account of the variety of printers now used by QL users. The driver can now handle up to 64 translate strings, each of which can hold 62 fields (including the character to be translated). A Postamble code can now be sent to the printer at the end of the print run, so that the status of the printer can be reset ready for use by another program. Even all of the standard printer functions (eg. ITALICS ON/OFF) can now be used to send up to 62 different codes to the printer, which should be more than enough for even the most verbose laser printer.

One major improvement to the printer driver program is the fact that strings can now be longer than the screen - the string scrolls left in order to allow a maximum of 100 characters (unfortunately, the string scrolls a little untidily, especially when you reach the end of the string). The device name or file name which can be used for the final output is rather strangely still restricted to a maximum of 30 characters (QDOS allows 41 characters including the device name {or 39 if a network device used}).

To allow you to use the wider range of facilities available in the printer driver, Perfection SE now also supports a total of eight different strips can be used to represent different text types and fonts on screen - the Configuration program allows you to alter the colour settings used to represent each strip if you prefer.

Overall, Perfection SE has come a long way since the original version of Perfection was launched and it is certainly worthwhile users upgrading to the latest version. As with any major program, the features wish-list continues to grow, but unfortunately, it seems that Digital Precision are rather loathe to take these on board at the present time. This is however, understandable in view of the limited market available to any large QL program, which can mean that it is hard to justify the commercial viability of improving major programs once they can perform their basic function.

That said, Perfection SE continues to be one of the simplest to use Word-Processors that I have seen (other than Quill which is about on a par as useability goes), and anyone who is serious about word-processing should consider getting this program.

Rich Mellor

SINCLAIR QL

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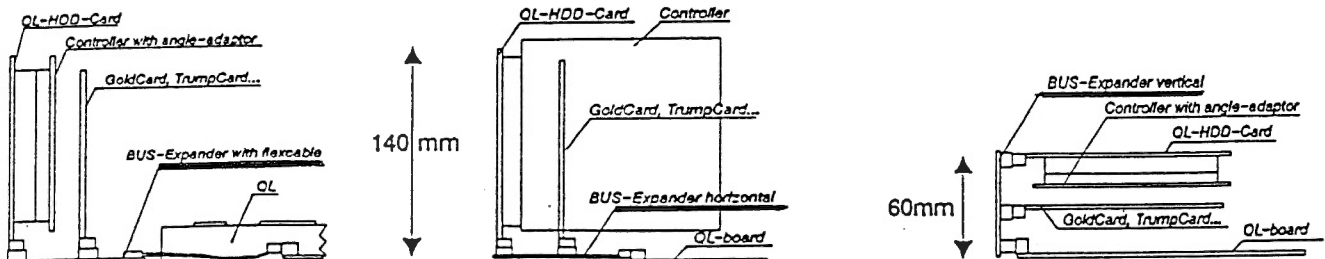
BUS Expander, 2 slots, (eg, for disk interface/gold card and hard disk controller)

Horizontal/ Vertical Connector	£ 22.00	Flexible cable Connector	£ 30.00
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QL In it's original case

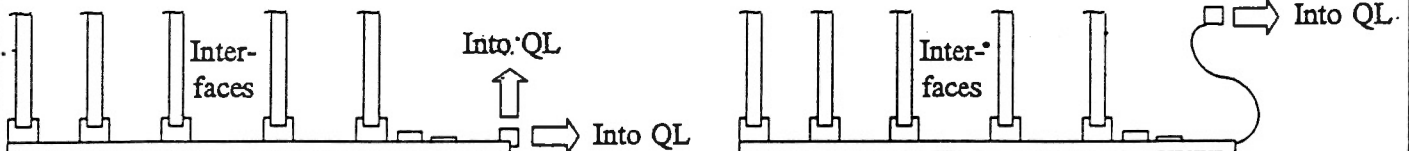
QL Installed In a large PC case

QL Installed In a small PC case



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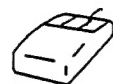
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BLACK KNIGHT

This is a new chess playing program for the QL, written by Francois Lanciault of Canada. It requires an expanded memory QL (at least 640k is suggested, but it works best on a Gold Card or other large memory machines).

It features 10 levels of play, with average response times of 5 seconds (level 1) to 1 hour (level 10). As you would expect from Jochen Merz, it is pointer driven. The pointer environment is supplied with the program.

A piece is moved by placing the little 'hand' pointer over the piece and pressing space, or the Hit button on a mouse, and dragging the piece to where you want it to end up. Only legal moves are accepted, of course.

Facilities include change side, start a new game, set up a position, cancel the last move, change sides (useful if you find yourself losing!), sound on or off and a demo mode where the computer plays against itself, use the game as a board display for two players, and save or load a game at its current position.

The game makes the seemingly odd option of grabbing as much free memory as it can, rather like Quill, which at first glance seems a little odd for modern software. However, the manual explains that Black Knight uses a special chess algorithm that makes use of transposition tables, which need large amounts of memory for maximum efficiency. It is possible to curb this memory grabbing habit by passing a figure for the amount of memory to be left free as a parameter in the EX command from Toolkit 2, so it does not prevent you having other tasks in the machine at the time. The brain of the program is always running so you are warned it may slow down other jobs in the machine. The program does not need to be Configured.

The program has a 5000 move opening library and a chess clock. It also has a scrollable moves display. All options are shown as options on the main display - no need to hunt through endless menus, for example.

A limitation (for speed reasons apparently) is that pawns can only be promoted to a Queen or Knight and you can't have more than 3 Queens or 3 Knights on the board at a time.

I am not an advanced chess player so I would not like to comment on the strength of its game - I would prefer to leave that to the Freddy Vachhas and Nigel Shorts of this world. I lost all of my first few games against it, then used some of the options to 'cheat' and correct my mistakes and eventually managed to beat it on its simplest level once I'd grown a bit more used to the program.

I have enjoyed playing it in the few days I have owned it. It is nice and simple to operate and can be played immediately without complex setting up procedures. A minor irritation was that the BOOT program contained an EX command (from Toolkit 2) and would not run either until I had replaced it with an EXEC command or switched on Toolkit 2 with TK2_EXT. Also, if started in 'TV mode' (mode 8) the display goes wrong as expected. Apart from those little false starts, it gave

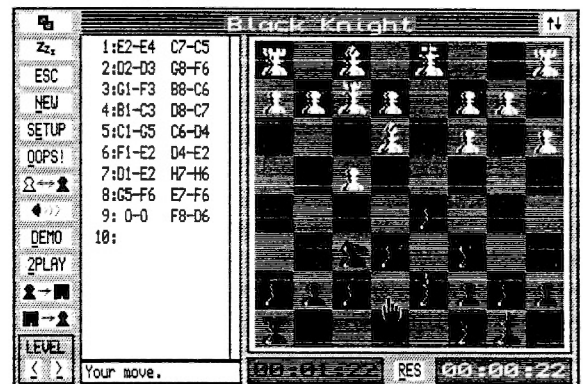


Fig.1 - The normal playing screen.

me no problems on my version JM QL at all. The program can apparently run on QL compatible hardware with enhanced display resolutions, which should be useful for ST-QL and QVME card users. The program window can be moved around the display - it does not use the full screen even on a standard QL in mode 4.

The display itself is not spectacular, but perfectly adequate, consisting of red and green squares, with black and white pieces, which have some shading effect down one side to represent the source of illumination, I suppose. It has no 3D display like the old Psion Chess. It works on a mono monitor display too.

I look forward to having QReview pit it against the old Psion Chess program if that can be arranged, to compare the standard of play.

Dilwyn Jones

[We will certainly try and find out which program plays the strongest game]

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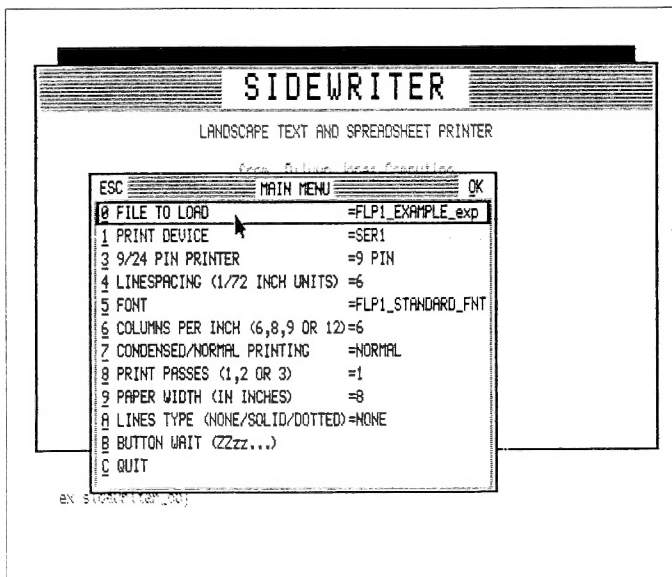
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SIDEWRITER

An A4 sheet of paper, as commonly used in computer print-outs, can have two orientations, Portrait or Landscape. Most of the time we use the former, but occasions sometimes arise, particularly with spread sheets, when a landscape output is more suitable. Unless we possess a "long carriage" model, or one of the more recent generation of printers capable of accommodating the landscape format from its control panel, then we have to resort to software to achieve the desired result.

Some years ago, there appeared on the QL scene a useful little program called "WRITE-TURN". Written by Simon Goodwin, it multi-tasked and could print up to 192 lines each 250 characters wide.

"SIDEWRITER" appears to take-up where this program left off as it has an upper width limit of 2048 characters (memory permitting), is additionally provided with a selection of reasonably good fonts, and can be pointer-driven.



As supplied, SIDEWRITER is configured to allow only the maximum width which can be exported from ABACUS (254 characters). The number of lines of text per inch is variable, and depending on the bit-image graphics mode of the printer, will usually work out at 6, 8 or 12 for a 9-pin (CRT1), and 6, 9 or 12 for a 24-pin (CRT2).

After making a back-up, the program should be configured to your system, and the manual clearly explains how to do this step-by-step. Having done so, and after booting-up, you are given the options of Pointer or Keyboard operation.

I found keyboard operation convenient. The intention

is however that the program should be pointer driven, and as such it provides an excellent introduction to this environment for anyone who has not used it before. All the necessary files are present on disc, and much of the manual is taken up explaining very clearly how the system works. A non-printing tutorial demonstration is supplied together with a small example ABACUS spreadsheet which does print-out.

SIDEWRITER will print from an "ABACUS_exp" file (obtained by exporting the original spreadsheet to Quill) or from any "_lis" file which gives only a line-feed at the end of each line. (The "printer_dat" file as supplied is suitable.)

The program is very easy to use once you have sussed out what is actually being defined as "width", "column", "line", or "character". You have to think laterally when tailoring the variables to your application, and if a very large spreadsheet is involved, a certain amount of trial and error may be required. The old maxim - "When all else fails read the instructions!" - is very relevant however, and if you fail to observe this, a lot of time and paper could be wasted. The manual tries very hard to clear up any initial confusion, so unless you are attempting very "fancy stuff", operation of the program ought not to present any difficulties.

I have designed the accompanying "sample print-out" to give some idea of the program's possibilities and describe how it has been set up from SIDEWRITER's menu system.

Up to 90 lines can be accommodated comfortably on an A4 sheet, clarity being aided by judicial use of the varied fonts and the program's facility to emphasise the layout using either solid or dotted lines. The author concedes that the fonts are not really letter quality, but they are adequate for the application.

The program can take quite a long time to print, especially if more than one pass is selected. As it is multi-tasking however, one can always get on with something else while the printer is beavering away.

All-in-all this is a useful addition to the QL's armoury, and I highly recommend it.

Jim Buik

SAMPLE PRINT-OUT USING "SIDEWRITER"

	(66)	(32)	(32)	(21)	(11)	(6)	(7)	(66)	(32)	(32)	(21)	(11)	(32)	(19)	(17)	TOTALS
	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
1994 JAN	2311.29	1132.87	1120.87	742.47	387.14	280.98	247.97	2356.78	1120.67	1134.56	737.65	387.89	1122.22	666.69	666.11	14416.16
FEB	2245.29	1100.87	1088.87	721.47	376.14	272.98	240.97	2290.78	1088.67	1102.56	716.65	376.89	1098.22	647.69	649.11	14009.16
MAR	2179.29	1068.87	1056.87	700.47	365.14	264.98	233.97	2224.78	1056.67	1070.56	695.65	365.89	1058.22	628.69	632.11	13682.16
APR	2113.29	1036.87	1024.87	679.47	354.14	256.98	226.97	2158.78	1024.67	1038.56	674.65	354.89	1026.22	609.69	615.11	13195.16
MAY	2047.29	1004.87	992.87	658.47	343.14	248.98	219.97	2092.78	992.67	1006.56	653.65	343.89	994.22	590.69	598.11	12788.16
JUN	1981.29	972.87	960.87	637.47	332.14	240.98	212.97	2026.78	960.67	974.56	632.65	332.89	962.22	571.69	581.11	12381.16
JUL	1915.29															11974.16
AUG	1849.29															11567.16
SEP	1783.29															11160.16
OCT	1717.29															10753.16
NOV	1651.29															10346.16
DEC	1585.29															9939.16
1995 JAN	1519.29															9532.16
FEB	1453.29															9125.16
MAR	1387.29															8718.16
APR	1321.29															8311.16
MAY	1255.29															7904.16
JUN	1189.29															7497.16
JUL	1123.29															7090.16
AUG	1057.29	524.87	512.87	343.47	178.14	128.98	114.97	1102.78	512.67	526.56	338.65	178.89	514.22	385.69	343.11	6683.16
SEP	991.29	492.87	480.87	322.47	167.14	120.98	107.97	1036.78	480.67	494.56	317.65	167.89	482.22	286.69	326.11	6276.16
OCT	925.29	460.87	448.87	301.47	156.14	112.98	100.97	970.78	448.67	462.56	296.65	156.89	450.22	267.69	309.11	5869.16
NOV	859.29	428.87	416.87	280.47	145.14	104.98	93.97	904.78	416.67	430.56	275.65	145.89	418.22	248.69	292.11	5462.16
DEC	793.29	396.87	384.87	259.47	134.14	96.98	86.97	838.78	384.67	398.56	254.65	134.89	386.22	229.69	275.11	5055.16
1996 JAN	727.29	364.87	352.87	238.47	123.14	88.98	79.97	772.78	352.67	366.56	233.65	123.89	354.22	210.69	258.11	4648.16
FEB	661.29	332.87	320.87	217.47	112.14	80.98	72.97	706.78	320.67	334.56	212.65	112.89	322.22	191.69	241.11	4241.16
MAR	595.29	300.87	288.87	196.47	101.14	72.98	65.97	640.78	288.67	302.56	191.65	101.89	290.22	172.69	224.11	3834.16
APR	529.29	268.87	256.87	175.47	90.14	64.98	58.97	574.78	256.67	270.56	170.65	90.89	258.22	153.69	207.11	3427.16
MAY	463.29	236.87	224.87	154.47	79.14	56.98	51.97	508.78	224.67	238.56	149.65	79.89	226.22	134.69	190.11	3020.16
JUN	397.29	204.87	192.87	133.47	68.14	48.98	44.97	442.78	192.67	206.56	128.65	68.89	194.22	115.69	173.11	2613.16
JUL	331.29	172.87	160.87	112.47	57.14	40.98	37.97	376.78	160.67	174.56	107.65	57.89	162.22	96.69	156.11	2206.16
AUG	265.29	140.87	128.87	91.47	46.14	32.98	30.97	310.78	128.67	142.56	86.65	46.89	130.22	77.69	139.11	1799.16
SEP	199.29	108.87	96.87	70.47	35.14	24.98	23.97	244.78	96.67	110.56	65.65	35.89	98.22	58.69	122.11	1392.16
OCT	133.29	76.87	64.87	49.47	24.14	16.98	16.97	178.78	64.67	78.56	44.65	24.89	66.22	39.69	105.11	985.16
NOV	67.29	44.87	32.87	28.47	13.14	8.98	9.97	112.78	32.67	46.56	23.65	13.89	34.22	20.69	88.11	578.16
DEC	1.29	12.87	0.87	7.47	2.14	0.98	2.97	46.78	0.67	14.56	2.65	2.89	2.22	1.69	71.11	171.16

SIDEWRITER "LINE SPACING" has been set at 15 - i.e. the space between characters across the long edge of the paper.

SIDEWRITER "COLUMNS" were set at 6 - i.e. the number of lines per inch down the shorter edge of the paper.

SIDEWRITER "PAPER WIDTH" is set at 8 - i.e. the width of the shorter edge of the paper (maximum 16).

ABACUS "PRINTER PAPER WIDTH" was set to 254 (characters) using <F3> <D> before export to QUILL.

SIDEWRITER "STANDARD" font and 2 passes of the printer were selected for this print-out.

SIDEWRITER shows lines (42) length (18.4) characters (156) of sections (1) to print.



C FOR YOURSELF

[This will be a regular section in the magazine and contain articles about all aspects of C . The articles will concentrate on the excellent C68 public domain C compiler. Ideas are welcomed for future articles together with examples of problems you have encountered, some ideas are given at the end of the article. If you have any Ideas or problems please write to 'C for yourself' at the address given on the contents page. To start the section Dave Walker, the main co-ordinator for C68, talks about the new release of C68 together with the future developments planned.]

The next release of the QDOS C68 package is now available. This release is known as "C68 for QDOS Release 4".

"C68 for QDOS Release 3" first became available in May 1992. It went through a few maintenance upgrades until Release 3.05 was made available in November 1992. There have been no further releases prior to the new release being announced here, so Release 3.05 is the version that most users are currently using.

This release is a major upgrade, so existing users are strongly recommended to consider upgrading to Release 4. The list of new features given below should be sufficient to make it worthwhile for any serious user of C.

MAIN C68 COMPILER PHASE

The heart of the C68 system is the main compiler phase - the actual C68 program itself. This has undergone a major revision for Release 4.

Changes include:

Improved ANSI compatibility

Release 3 of C68 added a large measure of ANSI compatibility. With Release 4 this has been taken even further so that there is virtually complete compatibility with the ANSI C standard. Only very obscure

features are now not supported.

For those rare reasons in which you wish to work in traditional K&R compatible mode, then a runtime option is available to instruct C68 to work in such a mode.

Improved Code Reliability

Release 4 of C68 has been put through a large number of C test suites to validate that the code generated always produces the correct results. These test suites detected a significant number of situations in which Release 3 produced incorrect results - all of which are corrected in Release 4.

Improved Error and Warning Messages

The internal re-structuring of the compiler has meant that the level of warning and error messages has been significantly increased.

Improved Code Generation

Release 3 of C68 already had a reputation for producing efficient code. Release 4 has managed to improve on this making code both smaller and faster.

Improved Compiler Performance

Changes to the internal workings of the C68 program have resulted in significantly improved performance - particularly when compiling large programs.

68030 and 68040 compatibility

Release 4 of C68 is compatible with 68030 and 68040 based systems. In particular, C68 is now fully compatible with the new Miracle QXL card. While many programs compiled with Release 3.05 will already run correctly on the QXL, this was not true of all programs - in particular the C68 compilation system itself. Release 4 of C68 resolves such problems and is fully QXL compatible.

New Run-time options

Many new runtime options have been provided providing control over facilities such as:

- * Selection for optimisation v compilation speed.
- * Which 680x0 registers c68 will use.
- * The ability to treat 'char' as unsigned

THE C68 LIBRARIES

One of the strengths of the C68 system is the high quality of the libraries that are supplied. These have been improved even further:

Improved ANSI compatibility

The standard C library now contains all the routines required by ANSI C.

New Routines

A large number of new routines have been added to the QDOS specific part of the libraries. These cover a wide variety of areas ranging from handling of QDOS strings to extended access to QDOS operating system calls.

SMS Compatibility

All the QDOS operating system calls can now be accessed using either the traditional QDOS name for the call, or alternatively the newer SMS based names for the same calls.

Some new calls only available on SMS systems are also now available.

Resident Code support

Support for LRESPR'ed C code is now supplied. Release 3 only provided as standard the capability of writing EXEC'able programs in C. Release 4 provides an alternative start-up module that

allows for code that is to be loaded via LRESPR. Examples might be new device drivers, or SuperBASIC extensions.

BUG FIXES

Release 3 of C68 was remarkably free of bugs considering the size of the package. Inevitably, however, there were some. All reported bugs have been fixed for Release 4.

FUTURE DEVELOPMENTS OF THE C68 SYSTEM

It is not intended that C68 Release 4 should be the end of the C68 development program. There are already a large number of new facilities that are either already in test or in the late stages of development.

The following facilities were not ready in time for inclusion in "C68 for QDOS Release 4". They will therefore be made available as upgrade disks at a later date.

Improved Code Generation

It is intended that future releases of C68 will be able to generate even more efficient code. We already have under test significant new enhancements to the code generation capability of C68.

New ENV Driver

The support of Environment Variables is being significantly enhanced by the development of the ENV device driver. The ENV device driver allows Environment Variables to be used from any programming language that provides facilities for reading and writing to files.

A side effect of using the ENV device driver is that the code required internally within each C program to support Environment Variables has been decreased so that the runtime size of all C programs is reduced.

It has also proved possible to maintain enough backwards compatibility so that programs using the existing methods for supporting Environment Variables will still

function correctly in conjunction with programs using the new ENV driver.

Runtime Link Libraries

One of the problems with writing C programs is that the minimum size of a C program is surprisingly large. This is be

The Runtime Link Library (RLL) concept allows for commonly used routines to be loaded once and then shared amongst all the C programs that wish to use these facilities.

The method selected for implementing RLL's is not tied to the C language, so it is envisaged that the RLL concept will gradually be widely adopted.

Support for Hardware Floating Point

The floating point support routines that are used internally by C68 are being upgraded to detect the presence of hardware floating point support. If present it will be used resulting in dramatically improved performance for programs that use floating point. If there is no floating point hardware present, then the previous method of using software only routines will automatically be used.

The second stage of this development will be to upgrade the maths library routines to use hardware floating point directly.

At first sight this development may not seem relevant to QDOS users as current systems do not have floating point hardware. However, such systems are now starting to appear.

Signal Handling

Many programs that originate on the Unix operating system take advantage of a facility called "signal handling" (if you do not know what this is, do not worry - you probably do not want to know!). This facility has no direct equivalent under QDOS, so current releases of c68 have not provided a complete emulation of the Unix signal handling facility.

We have now worked out how we can do a

good emulation of the signal handling facility on QDOS. This will therefore be added to a future C68 release. This should make it possible to port to QDOS programs from Unix that up to now have been difficult because of their reliance on proper support for signal handling.

THOUGHTS FOR FUTURE ARTICLES

The following are ideas that have been received for future articles:

- How to interpret the documentation that describes the C68 libraries,
- Dynamic arrays in C
- Explaining the I/O levels within C68
- How to use MAKE

Any other ideas would be welcomed. Also, examples of problems that you have encountered yourself - there is a good chance that others have also encountered them!

Dave Walker

[C68 is available from Qubbesoft PD, SJPD, and Quanta]

ANELPUM QUAT

No doubt Sherlock Holmes aficionados will be leaping from their seats shrieking outrage at the numerical error in my title. However, the allusion is not to the strength of the great detective's cocaine mixture¹ but to the amount of computer failure I have yet to repair before I discover the solution to Anelpum Quat.

This excellent adventure was first reviewed by Rich Mellor in the February 1991 edition of QL World. He claimed to have reduced the level of computer failure to 82 percent. By the time the same reviewer covered the game in QL Leisure Review #1 he had improved this figure to 23 percent. To be honest the Helpline in that issue was as useful to me as a chocolate teapot since my progress through Nick Ward's electronic labyrinth was then so limited that I could neither locate the items mentioned in the hints nor make use of most of those I had found myself.

I persevered of course, spending long nocturnal hours at the QL (or should that be inside the QL?) and my efforts would occasionally be rewarded with a wild warbling beep to indicate I had scored some points. In this way I accomplished a reduction in computer failure to 60 percent. At that point and for many months thereafter Anelpum Quat stubbornly refused to yield me any more of its secrets.

And so my frustration continued. No further hints in QL Leisure Review #2 and nothing in QReview #1 except for Mike Tuppeney's parenthetical plea in his Adventure Playtime review. In fact it was the heart-rending pathos of Mr Tuppeney's wan and woeful cry for help that moved me to crank up the wordprocessor and write.

It came to me in a dream...

... that is I woke up one recent morning with a specific location in my brain, two words on my lips and a gut feeling in my guts. Springing out

of bed like some crazed Zebedee I made the keyboard in seconds flat and typed in the magic combination. BOINGGGG!!! There it was! The missing link! No holding me back now! I charged into action with great gusto, quickly finding my way into hitherto virgin territory and discovering weird and wonderful uses for the burdensome clutter I'd been lugging around all those lonely nights.

In the bedroom I found I could use Abacus to get the information I needed to sell in order to raise the funds I required to bribe the uniformed official in the entrance hall to... but I'm running ahead of myself. Let me start at the beginning.

I find it hard to imagine anyone could still be stuck at the game's first location but if you can't get through try directory enquiries. Once inside you'll find the cat is partial to ketchup, custard and cryptic crosswords but unless you want to be arrested hold the mayonnaise. This information should suffice to help you discover secret passageways in the east and west walls of the compiler and open up the game considerably.

Taking the east wing first, your main objective should be to get inside the operating system so why not give the wizard a call? But beware the deadly insect that lurks in the job control area and make sure you take a weapon. A polyglot fish will supply the necessary firearm just as soon as he translates the material given you by those prisoners you helped escape. It will also be to your advantage to wander through the SuperBASIC area in search of something for the scheduler, who will otherwise be unable to proceed. You'll need the bagpipes and the chauffeur later so take them with you and head back to the compiler.

And then? Go west young (wo)man! Of course you'll require some money to grease the palm of the... but I told you how to do that three paragraphs ago. Once revealed the hidden exit

will give you access to five new locations (don't interrupt the owl just yet!) but further progress can only be made by public transport and it's up to you to provide the staff! The occupant of the strange room is gasping for a smoke and will assist you numerically if you oblige. Now you can contact the bulletin board via the modem and deliver a suitable polysyllable to the eloquent gentleman nearby who has the coarse file required by the tradesman fixing the filing system.

That's all I'm giving away for now. There are many other tasks to complete and puzzles to solve but I have concentrated on those which open up new areas of the game for exploration rather than those which simply score points.

And now for my own needs. As I said at the beginning I have yet to find a full and final solution to the problem of Anelpum Quat. And so I conclude my offering with an appeal for any information which might help me, especially in the following areas:

WHERE CAN I FIND A MEGABYTE?

QL Leisure Review #1 gave this hint:
The pigeon is hungry, he could do with a byte or 1000.

There is a BYTE in the rom (which you can poke) and a thousand (1024!) bytes would be a KILOBYTE but the parser² prevents entry of that word. However, it does recognise MEGABYTE.

[A megabyte needs a lot of space propping up the bar at the end of the queue.]

HOW CAN I RID MYSELF OF THE MEDIUM'S CURSE?

[Injecting some humour into the medium may give enough interference]

WILL I BE STUCK AT THE BACK OF THE QUEUE FOREVER?

[Possibly if you don't proceed in a southerly direction]

CHRIS BERRY

¹ a seven percent solution (for the uninitiated).

² I have mixed feelings about the parser. It's a bit like one of those infuriating people who never listen to what you say and invariably interrupt you halfway through a sentence. On the other hand it does enable you to compile a complete and definitive vocabulary of the game if you are sufficiently patient and methodical. Having done so myself I can report that the only acceptable words whose functions I have yet to discover are:

EAT EXIT HIT MEGABYTE PRESS
SWEAR

INTERNATIONAL QL MEETING

The Sinclair QL User Club e.V. is organising an International QL meeting in Germany next year. The date is Saturday February 19th. It is to be held at the University of Bielefeld, North-East Germany. For more information write to:

Sinclair QL User Club e.V.
c/o Franz Herrmann
Talstrasse 21
D-53545 Ockenfels
Germany

WANTED REVIEWERS

Would you like to try your hand at writing a review for QReview? If so write to the editor detailing the types of programs that interest you.

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QL SOFTWARE

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Consists of Easysource and C library routines, etc.

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PAGE DESIGNER 3

This most delayed of all QL software of all time (I think!) is finally about to hit the streets. We were hoping to launch at the Bristol Quanta Workshop, England, 17th October 1993. PD3 is pointer driven, can be controlled by mouse or keyboard, uses Pro Publisher compatible Hires fonts, features text import, full QL screen handling, graphics menu, cut and paste, 9 pin, 24 pin and HP Deskjet printers and so on. Can be used for making posters and other general mixed text and graphics applications. It has been a long hard slog getting this program out. I hope you will feel it was worth the delay!

Page Designer 3.....£40.00
PD2 upgrade.....£25.00

QSHANG & FIREBIRDS

QSHANG - This game is based on Gin Rummy, but uses the pieces from a Mah Jong set rather than cards. The aim is to remove all the pieces from the screen by matching pieces of the same type. However, only those pieces that have a vertical side exposed can be removed. This is all done against the clock.

The pieces consist of three main sets plus three smaller groups. The larger sets come in four groups of 9. These are called wheels, characters or numbers, and sticks. Therefore, you must remove two pairs of the larger sets, e.g. two pairs of 1 of wheels. There are also four pieces representing three dragons (marked Green, Red, and White). There are also four flowers and four seasons that pair with any of other piece from the same group, i.e. any flower goes with any other flower.

The players task is thus quite complicated. They must choose whether to concentrate on removing pieces from the top-down, or the sides-inwards. The bright green background, and the limits of the QL display can make it difficult to tell if a piece is removable. There are a couple of options to help the player. The first is an 'easy' option. I am told that this creates a solvable puzzle (PAH!!). I have not noticed any difference between the 'easy' and 'hard' options. There is also a 'help' and 'back' options. The former will suggest one half of a pair that can be removed, while the latter allows you to return the last removed pieces. Both options invalidate any time that you achieve.

The graphics handler has 2 features. The first is that it can become slightly confused when removing a piece from the very top of the pile, leaving a 'shadow' of the piece. This is only annoying and has no effect on the game. The second problem is that when a piece is selected, one can not de-select it. One must go to the nearest piece and select that one. This can be annoying if three pieces are exposed and the order that they are removed in is crucial. It is easy to accidentally remove a wrong piece. The graphics themselves are excellent, the title screen is worth the price of the game alone. The programmer has made a brave attempt to cram as much detail into the pieces as is humanly possible. There is also a small high-score table and a two player option. This all needs the pointer environment to run, and the relevant files are included on the boot disk.

Hints? Well, I always try to balance taking from the pile with working my way in from the sides. Strangely enough, my best scores have been achieved after a visit down the pub! The game is much easier

to play if a mouse is connected. For me this game provides a good mental challenge and is a worthy rival to chess.

FIREBIRDS - I must admit that I have an interest in this game. No, I did not write it. When I was younger (My God, I must be getting old to write that), they had this game at my fathers work-club. My brother and I discovered that if you knocked the plug, you gained extra lives. Thus we played this game a lot and became quite good at it.

This version faithfully follows the original. It is basically Glaxians, but the aliens swoop and dive before you rather than remaining in nice rows. There are several types of aliens, requiring greater numbers of hits to destroy. The aliens are rather suicidal and will try to Kamikaze into you. Worse, their bombs do not just fall vertically, but also diagonally, often in your direction. Every so often, a bomb will be dropped. When it explodes, unavoidable debris spray in your direction. The only defence is to sit below the bomb and shoot it. However, you have one defence, a shield and booster. Pressing the up-arrow key allows you to fly into the aliens and missiles with immunity. Unfortunately, the shield is only available once per life.

This game is fast, and that's just on a JS machine! Often I just want to stop playing and sit back and admire the sprites and animation. The graphics are excellent, and a good attempt has been made to utilise sound. It is Minerva compatible despite it's age.

There are, however, a couple of niggles. First is that there is no high-score table... I want my name up there in lights!! More importantly is that this game does not sit well with the Pointer Environment. The programme writes directly to the screen to maximise speed. I wrote to Jochen Merz over whether it could open a dummy channel and test that every second before writing to the screen. I was rather surprised when he wrote back saying that it would slow the game to much. With the Gold Card, this game is very difficult. On the ST board or QXL it must be nigh impossible. On these faster machines, such a speed-limiter is actually needed. The game is that fast!! If you like weird displays, start this game under the PE and activate another job. Enjoy the result!! Buy this game for an excellent shoot-em-up.

Finally, by request, GO TO YOUR LOCAL QUANTA SUB-GROUP.

Andrew Pratt



INTERRUPT

DJToolkit is a small SuperBASIC toolkit which supplies the programmer, who may wish to distribute his compiled programs, with a number of routines that are to be found in other toolkits like Toolkit 2, Turbo Toolkit etc. There are 14 procedures and 30 functions in 3750 bytes of code and the maths stack comes in for some heavy usage in that small number of bytes.

While testing DJToolkit, I had a number of problems and most of them related to the handling of the maths stack. I had followed all the advice given in various magazine articles, books and manuals but still the problems were there. The easy ones to fix were the typing errors, putting an error code in D1 instead of D0 is not very useful ! This article is based on my findings on how the maths stack actually behaves.

My main weapon against the 'funnies' was QMON 2, written by Tony Tebby and available from Digital Precision for a modest fee and very well worth it in my opinion.

PROCEDURES are the best extensions to write, the stack handling is easy and can be summed up in a few words - forget about it !

At the start of the procedure code, fetch any required parameters, do what must be done with them in the code and just before returning to SuperBASIC all you have to do is set D0.L to an error code (or zero if no errors occurred) and RTS back to SuperBASIC. All the stack tidying and/or error handling will be taken care of for you by QDOS. The maths stack pointer, A1.L, can have any value and all will be well. If only functions were as easy !

The maths stack is very critical when you write a function. There is none of the handy 'QDOS will do all the work' in functions, you have to keep everything in order or major problems will befall your testing - multiple crashes for one thing.

In the following text, when I use the term 'on entry to a function' I mean exactly that, the program counter is pointing at the very first instruction of your code and has not yet done anything. No parameters have been fetched and no maths stack space has been requested. Bear this in mind as what follows changes as soon as you do any of the above.

One of the first problems I had with the maths stack was the fact that I was always led to believe that on entry to a function, A1.L points to a suitable value for the top of the maths stack (relative to A6 that is). This is not the case.

On entry to a function, the only thing you can be sure of regarding the top of the maths stack, is that the value is held in BV_RIP(A6) and A1 should be disregarded as a stack pointer until later.

On entry to a function, A1.L points to nothing ! A1 can be negative, zero or positive, each has a special meaning and will be discussed below, however, I should explain that the information given here is a 'best guess' and is based of what I have found while testing and debugging DJToolkit using QMON 2, it also seems to work.

If A1.L holds a negative value at the start of your function, this means that your function has been called as part of an expression such as :

```
PRINT 10 * MY_FUNCT(parameter_1, parameter_2, ....)
```

In this case, before MY FUNCT was called, the floating point value for 10 was put on the maths stack, and A1.L will hold the value minus 6. This means that 6 bytes have already been used on the maths stack. Note that A1 is NOT pointing at the maths stack yet, that comes later.

If the value in A1.L is zero then your function is being called on its own, or as the first value in an expression. For example :

```
PRINT MY_FUNCT(parameter) or
PRINT MY_FUNCT(parameter) + 22
```

Once again, A1 does NOT point anywhere near the top of the maths stack yet.

Finally, it seems that if the value in A1.L is greater than zero, then there are A1.L bytes free for use on the maths stack without having to call BV_CHRIX to check it. The space could be available due to some previous calculation using quite a lot of room and this could be used as a method of finding out if a call to BV_CHRIX is required.

For example, if you need to reserve 10 bytes on the maths stack for your function's result, but on entry to it, A1.L holds the value 20, then a call to BV_CHRIX with D1 holding 10 will NOT change the maths stack address. You can assume that it is safe not to call BV_CHRIX.

The first thing that any function (or procedure for that matter) should do is count its parameters to make sure that enough have been supplied. There are a couple of ways to do this.

The first relies on the fact that all the parameters will be the same type, for example, word integers, each 2 bytes long. All you need to do is fetch all the parameters onto the maths stack by calling the appropriate CA_GT??? vector routine and check the value in D3.W afterwards. This is the number of actual parameters that were fetched. The following code fragment gives an example of this.

```
MYFUNCT      MOVE.W      CA_GTINT,A2      Fetch word integer parameters
              JSR        (A2)           Go get them
              TST.L      D0             Did it work ok ?
              BEQ.S      PARS_OK       Yes, skip the next instruction
              RTS                    No, return the error code to SuperBASIC

PARS_OK      CMPI.W      #nn,D3        Were there 'nn' parameters ?
              BEQ.S      GOT_OK       Yes, skip error handling

BAD_PAR      MOVEQ      #ERR_BP,D0     Bad Parameter error code
              RTS                    Return error to SuperBASIC

GOT_OK                               Rest of your code
```

The above is fine, but what if you have to fetch different types of parameter or if you need to check that certain parameter separators have been used ?

The other method of counting parameters is used, in addition, it is a lot quicker than the above method. DJToolkit uses the following subroutine for every procedure and function.

```
COUNT        MOVE.L      A5,D0         Pointer to last parameter
              SUB.L      A3,D0         Less pointer to first parameter
              DIVU      #8,D0         Divided by 8 = how many parameters
              RTS
```

On return from the above code, D0.W holds the number of parameters supplied by the user when the function or procedure was called. A simple check against D0.W can be made to ensure that there are enough parameters. If so, we can fetch them as required.

Fetching parameters on to the maths stack will finally set A1.L to a suitable value for the top of the maths stack.

FETCHING PARAMETERS

If your routine requires all its parameters as the same type then simply call the appropriate CA_GT??? vector. For example, the following function call :

```
MY_FUNCT(parameter_1, parameter_2)
```

will leave the maths stack like this after fetching word integers using the CA_GTINT vector :

```
2(A6,A1.L) ----> parameter_2
0(A6,A1.L) ----> parameter_1
```

If a mixture of parameters have to be fetched, then some manipulation will require to be done. In addition, the final layout of the maths stack will not be as simple as the above example.

Imagine that your function needs to fetch 2 long words (4 bytes each) then 2 word integers (2 bytes each), what should you do ?

```
MY_FUNCT(long_1, long_2, word_1, word_2)
```

After counting your parameters, as per the second example above, and finding that all is well, you need to convince QDOS that there are only 2 parameters to fetch, and these are the first 2, the long words long_1 and long_2. Proceed as follows :

GOT_OK	MOVE.L	A5,-(A7)	Save A5 for now
	LEA.L	16(A3),A5	Pretend there are 2 parameters
	MOVE.W	CA_GTLINT,A2	Fetch 2 long integers
	JSR	(A2)	Go get them
	MOVE.L	A5,A3	Next parameter is word_1
	MOVE.L	(A7)+,A5	Recover old A5

So your maths stack now looks like this :

```
4(A6,A1.L) ---> long_2
0(A6,A1.L) ---> long_1
```

and you still have a couple of word sized parameters to fetch. So what should you do with A1 in between fetching your longs and integers ?

The good thing about the parameter fetching routines is that they preserve anything that is on the maths stack even if it has to be moved around in memory to fit the latest parameters on to it. Basically all you have to do now is fetch the 2 word sized parameters as follows :

	MOVE.W	CA_GTINT,A2	Fetch word sized parameters
	JSR	(A2)	Go get them

This will leave the maths stack looking like this :

```
8(A6,A1.L) ---> long_2
4(A6,A1.L) ---> long_1
2(A6,A1.L) ---> word_2
0(A6,A1.L) ---> word_1
```

which is not quite the order that they were supplied in, so beware in your code or you could end up with the processing being done on the wrong parameters !

Confused yet ? Just wait until you try mixing string parameters in as well !

Strings can be odd or even length, but they will always be even on the maths stack. When a string is fetched, a word is put on the stack to hold its length then the actual data bytes of the string follow.

The word on the maths stack gives the -1actual-0 string length, however, if the length is odd, there will be an extra byte added to the end of the data in order to keep the stack even. For example,

```
MY_FUNCT("Testing")
```

leaves the stack looking like this, when the parameter has been fetched :

```
2(A6,A1.L) ---> Testing?
0(A6,A1.L) ---> 07
```

As you can see, there is an extra byte to make sure that the next bit of maths stack starts on an even address, if the parameter was an even length, the padding byte would not be required.

So, now you know how to get parameters onto the stack, you can load them into registers and use them in your code as required, but what do you do with the room that they used when they were on the stack ? The answer is quite simple, you have to keep it tidy.

KEEPING IT TIDY

You must always keep a tidy maths stack, or else !

If you are fetching words, each one takes 2 bytes, longs take 4 each and floats take 6 bytes each. Strings take 2 + number of actual data bytes + 1 if the length is odd. These types of parameter are quite simple to deal with, just add the appropriate number of bytes to A1 and all will be well.

When dealing with strings, you must remember to count the word used for the length and the padding byte if it was used. The best way is to get the length word into a register, add 3 and clear bit 0 as follows. We will assume that the maths stack looks like the example above with the string 'Testing' on it.

TIDY	MOVE.W	0(A6,A1.L),D0	Get the string length
	ADDQ.W	#3,D0	Add on the extra
	BCLR	#0,D0	Make the value even
	ADDA.L	D0,A1	Tidy the stack

This piece of code will work regardless of whether the string is odd or even length and takes in to account the padding and the word count. If you need it explained, here goes :

The length word in the above example is 7, add 3 gives 10. 10 is an even number so bit 0 will be 0 already so 10 gets added to A1 to keep the stack tidy. This will remove the word for the length, the 7 data bytes and the 1 padding byte giving us a tidy stack.

If on the other hand the string had been "More Testing", the length word would be 12, add 3 for the word length and any possible padding byte gives 15. 15 is an odd number so clearing bit 0 would make it 14 and even. As there is no padding byte for an even length string, this is the correct number to add to A1 to tidy the stack. Easy stuff !

Remember, it is absolutely vital that A1 is kept even. The only time it can be odd is when you are accessing bytes on the maths stack but A1 must end up even at the end of your processing. An odd value in A1 will probably result in a QL crash or, if you are lucky and have QMON 2 (or a similar monitor) loaded and activated, an address exception error.

So now we have our parameters, our stack is tidy and we need to return a result, what do we do now ? Read on.....

Norman Dunbar

THE ORACLE

Out of the depths of history comes the beautiful and ancient game of The Oracle, a puzzle requiring skill, strategy and, deep concentration. Place 72 decorated tiles on a board of 96 squares by matching symbols and colours. Meditate carefully over each move and you may find the secret 4-ways which will unlock The Oracle. The Oracle provides wisdom to guide you down to the Final solution. Will you be able to solve the puzzle? If you do, you will find that The Oracle is more than a mere game.

The above opening passage from The Oracles manual certainly sets the scene for this unusual puzzle written by Jochen Mertz in Germany.

As with most of the software from Jochen Mertz it is written to be run in the Pointer Environment, or as he calls it Pointer EnvInterface. You do not need to worry if you do not use the Pointer Environment as the files necessary for it to work are included on the disk. The program can be started by either pressing the reset button on your computer and then pressing F1 with the disk in FLP1_ or by executing it directly if you already have the Pointer Environment loaded.

Once the program has been loaded you are presented with an 8*12 board, containing 96 squares, taking up most of the screen together with a few menu items down the left hand side of the board (If you are using a high resolution machine you are given the option of moving the window to a suitable location using the standard Pointer Interface window move item). The board is divided into two areas which are an integral part of the puzzle. The outer edge of the board is called the Beyond and the rest of the board is called the Within.

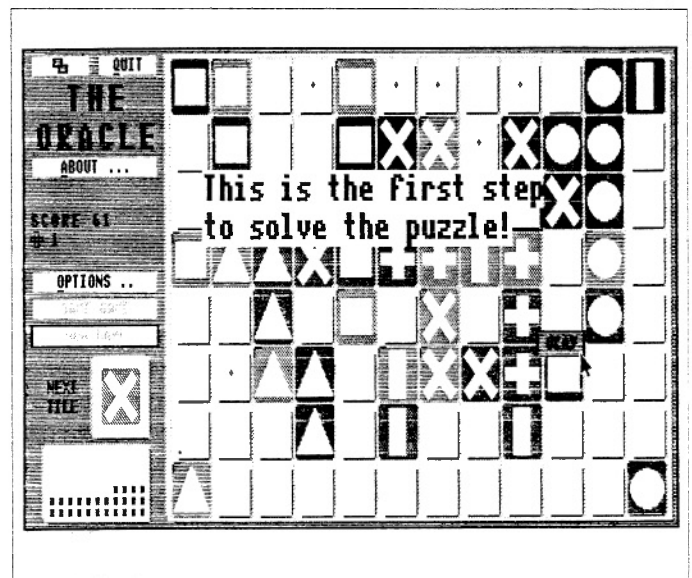
The object of The Oracle is to cast 72 tiles onto the board, creating as many matches between the tiles as possible and scoring as many points as possible. A tile is made up of a colour and a symbol such as a green triangle. A tile can only be placed on the board if it matches either the colour or the symbol of all adjacent tiles and it can be placed only above, below, left or right of an adjacent matching tile.

To score any points in the puzzle you have to complete what are called legal matches. There are four matches possible ranging in difficulty, and point value, from 1 to 4. The first is where a tile is placed next to another tile matching either the colour or symbol. The second matching is when you match one tile with two adjacent tiles, one tile must match by symbol the other by colour. The third matching occurs when you match your tile with three adjacent tiles, matching either the colour of two tiles and the symbol of the third or the symbol of the two tiles and the colour of the third. The fourth and hardest match is when you can place your tile in the centre of four other tiles matching two by colour and two by symbol. Extra bonuses are given for each 4-way match and having fewer than three tiles remaining when you cannot place any more tiles on the board. These matches also have to occur in the Within area of the board to score any points. It did say in the opening paragraph you did need skill, strategy and deep..... concentration.

There are three options given on the options menu, the first being Always Show Moves. This places a dot on each square in which you can legally place your current tile (which is shown below the options menu selection). This is very useful when initially learning how to master the puzzle, this option also disqualifies you from making the High Scores List. The second option is to Show Next Move. This places a dot on each square in which you can legally place your current tile. This only lasts for one turn and also disqualifies you from the High Scores List. The last option is to End the Game, a useful option if you feel it is getting the better of you.

The other two menu selections you can make are to start a New Game and to start the Same Game which restarts the game with the same order of tiles, a very useful option if you have a sudden lapse of concentration at a crucial moment (providing you have jotted down your tile placements).

When you start the puzzle the program initially places two tiles in the centre of the board and one tile in each of the four corners of the board. From then on your on your own, providing you don't use the show options. To place your tile all you do is place the cursor in the empty square and press space, enter or a mouse button. If you are trying an illegal move a suitable message appears explaining why you are not allowed that move. If you complete a four way match the program will give you a hint on how to solve the puzzle to help you ultimately to become an Oracle Master.



The Oracle is a very good puzzle and will keep you amused for hours/days/months/years trying to work out the best positions for your tiles to gain that extra point and those elusive four way matches. The screen is nicely presented and uncluttered and it can be played at a pace that suits you as no time limits are applied. Will you be able to solve the puzzle? Is the Oracle more than a mere game? Buy it to find out.

Bruce Nicholls

plus4 publisher

plus4 publisher is the new modular desktop publishing system comprising the **plus4** wordprocessor, **LINEdesign**, and **publisher's pack**. The system is recommended for use with Gold, QXL or QVME cards and exploits their high-resolution displays of up to 1000x1000 pixels.

The new page design program **LINEdesign** is far ahead of all drawing and page-design programs ever released for the QL. Read the reviews in the July issue of Quanta for its vast range of capabilities. These include text in 57 scalable founts which can be printed at any size from smallprint to huge headline without jagged edges or loss of quality. Scalable drawings and text which can be moved, superimposed, rotated to any angle, shaded, slanted, even distorted for special effects. **LINEdesign** is supplied on *Eleven* disks, containing founts and ready-made drawings.

publisher's pack combines the text editing and printing capabilities of **plus4** with the graphic and fount handling power of **LINEdesign**. In addition **publisher's pack** includes a free upgrade to **fountext93**, a new high resolution successor to **fountext88** which prints at 180 x 180 dots per inch on 24-pin and bubblejet printers. Step-by-step instructions in the manual together with sample documents and ready-made page-layout objects such as shadowed boxes provide all you need to start preparing you own professional looking publications.

plus4 version 4

The latest version of the superb wordprocessor **plus4** breaks new ground by providing macro recording and playback with 28 control keys that can be allocated to any key sequence. Superseding altkeys and hot-keys, **plus4** records series of command and text entry keys as you type them on the keyboard and plays them back each time you press the designated control key. Macros can also be written or edited as a text file. You can now redesign the program's user interface the way you like it. Other new features include interactive visual editing of the text margins and tabs, which breaks the only remaining hurdle for die-hard **Quill** users who have not yet converted to the far superior **plus4**. There are too many other enhancements in the user-friendly stakes to mention here.

plus4 and plus4 publisher software		other software	
plus4 publisher	£199	DATAdesign	£59
enquire about special upgrades to plus4 publisher if you currently use plus4, text87 or LINEdesign		DATAdesign API	£19
		QD version 5	£55
LINEdesign	£99	QSpread	£69
plus4 wordprocessor	£79	QDesign II	£69
fountext93 + founted89 (graphic driver)	£39	Qpac II	£39
2488 (for 24-pin and bubblejet printers)	£19	FiFi	£19
typeset90-deskjet (for Deskjets and lasers)	£19	QTop	£29

You can pay by cheque, Traveller's cheque, Postal Order, Eurocheque.

For all enquiries ring **071 485 9008** Monday to Friday 2pm-5pm

Software 87, 33 Savernake Road, London NW3 2JU



FUNCTIONality

PROCMan is a short program to allow you to extract procedures and functions from a SuperBASIC program on disk, creating a new program on disk containing just those you specify. It allows you to create a library of routines on disk and just extract the ones you want for writing your own basic programs. Operation is greatly speeded up if you copy the program to ramdisk first.

The SuperBASIC version can simply be LRUN. If you have a basic compiler, it is a useful program to compile. I have tested it on QLiberator version 3.36. Compiling gives a useful degree of speedup to this program. It does take a while to scan a complete program, so compilation is a great help, although you can use it in basic of course.

Procman is very simple to use. Simply start it up and give it the filename of a Basic program.

It then runs through the program scanning for all procedures and functions it can find. It prefers well structured programs, although it will accept single line procedures or functions. It will NOT like nested procedures and functions (definitions inside each other), so don't write such programs, bad programming practice!

It will then list the procedure and function names to the screen, with a number and letter alongside each one. The letter P or F indicates a procedure or

```

100 REMark Procedure/Function Manager by Dilwyn Jones
110 REMark next two lines for QLiberator users only:
120 REMark $$heap=3000
130 REMark DEF_INTEGER a
140 MODE 4 : WINDOW 484,202,14,14 : WINDOW #0,484,32,14,216
150 BORDER 1,255 : BORDER #0,1,255
160 PAPER 0 : PAPER #0,0 : INK 7 : INK #0,7
170 REPEAT program
180 CLS : CLS #0 : CSIZE 2,1 : AT 3,7 : PRINT 'PROCEDURE/FUNCTION MANAGER'
190 CSIZE 0,0 : AT 12,32 : PRINT 'by Dilwyn Jones'
200 INPUT #0,'Source filename:';source$
210 IF source$ = '' : EXIT program
220 INPUT #0,'Destination filename:';dest$
230 IF dest$ = '' : NEXT program
240 max% = 60 : REMark maximum number of routines
250 DIM name$(max%,20),start$(max%),finish$(max%),type$(max%)
260 DIM selected$(max%) : REMark routines selected from list
270 items% = 0 : REMark number of routines found this time
280 this_line% = 0 : previous_line% = 0
290 inprocfn% = 0 : REMark not yet in a PROC/FN
300 longest% = 0 : REMark longest proc/fn name
310 CLS #0 : PRINT #0,'Reading program...'\Line ' ;
320 OPEN_IN #3,source$
330 OPEN_IN #3,source$ : REMark read in all routines
340 REPEAT read_back
350 IF EOF(#3) = 1 OR items% > max% THEN
360 IF inprocfn% THEN finish$(items% - 1) = previous_line%
370 EXIT read_back
380 END IF
390 previous_line% = this_line%
400 INPUT #3,baseline$ : REMark fetch line of BASIC
410 numlen% = (' ' INSTR baseline$) - 1
420 this_line% = baseline$(1 TO numlen%)
430 AT #0,1,5 : PRINT #0,this_line%;
440 def_pos% = 'DEFine PROCedure' INSTR baseline$
450 REMark some programs have 2 spaces between DEF and PROC
460 IF def_pos% = 0 : def_pos% = 'DEFine PROCedure' INSTR baseline$
470 IF def_pos% > numlen% THEN
480 IF inprocfn% THEN finish$(items%-1) = previous_line%
490 inprocfn% = 1 : REMark found a procedure definition
500 ELSE
510 def_pos% = 'DEFine FuNction' INSTR baseline$
520 IF def_pos% = 0 : def_pos% = 'DEFine FuNction' INSTR baseline$
530 IF def_pos% > numlen% THEN
540 IF inprocfn% THEN finish$(items%-1) = previous_line%
550 inprocfn% = 2 : REMark found a function definition
560 ELSE
570 def_pos% = 'END DEFine' INSTR baseline$
580 IF def_pos% = 0 : def_pos% = 'END DEFine' INSTR baseline$
590 IF def_pos% = 0 THEN
600 NEXT read_back : REMark any old line, ignore
610 ELSE
620 REMark end define line, record as end of previous definition
630 IF inprocfn% THEN finish$(items%-1) = this_line%
640 END IF
650 inprocfn% = 0 : NEXT read_back

```

function respectively. Up to 60 routines can be listed on the screen, which should allow reasonably large programs to be scanned.

The number is the one to be typed in when asked to select routines to be extracted. When you specify a routine, it places an asterisk alongside it to show it has been selected.

Enter a zero, or just press ENTER to make the program begin to assemble all the selected routines into a new program. Line numbers remain as they were in the original program.

The program shows a list of what it has assembled on the screen as it goes. Current line numbers being scanned are shown in the bottom window to show you how far it has got. When the program finishes it offers you a choice of PRESS ESC TO QUIT or ANY OTHER KEY FOR ANOTHER RUN.

PROBLEMS. This program was written for printed publication in QReview magazine, so the brief was to keep it short. Therefore, some compromises in error trapping had to be made. In particular, if you have been editing a program in an editor you may find that if you inserted leading spaces before line numbers that this causes a problem. If you put more than two spaces between DEF and PROC or DEF and FN or END and DEF the program will fail to spot those routines.

END DEFine does not have to have a name after it. It uses the previous

```

660     END IF
670     END IF
680     REMark we are now in a line with a PROC or FN, extract name
690     baseline$ = baseline$(def_pos%+17-inprocfn% TO LEN(baseline$))
700     REMark before we do any more, check for single line definition
710     single_line% = 'END DEFine' INSTR baseline$
720     IF single_line% = 0 : single_line% = 'END DEFine' INSTR baseline$
730     REMark name will go no further than ( before parameters...
740     def_pos% = '(' INSTR baseline$ : REMark stop at parameters
750     IF def_pos% > 0 THEN baseline$ = baseline$(1 TO def_pos% - 1)
760     REMark ...or no further than : before new statement
770     def_pos% = ':' INSTR baseline$ : REMark stop at new statement
780     IF def_pos% > 0 THEN baseline$ = baseline$(1 TO def_pos% - 1)
790     REMark strip spaces from left
800     REPEAT unspace
810         IF baseline$(1) = ' ' THEN
820             baseline$ = baseline$(2 TO LEN(baseline$))
830         ELSE
840             EXIT unspace : REMark finished
850         END IF
860     END REPEAT unspace
870     REPEAT unspace
880         IF baseline$(LEN(baseline$)) = ' ' THEN
890             baseline$ = baseline$(1 TO LEN(baseline$)-1)
900         ELSE
910             EXIT unspace
920         END IF
930     END REPEAT unspace
940     start%(items%) = this_line% : REMark start line number
950     name$(items%) = baseline$ : REMark which is now reduced to the name
960     IF LEN(baseline$) > longest% THEN longest% = LEN(baseline$)
970     type%(items%) = inprocfn% : REMark 1=proc,2=FN
980     REMark following line handles one-line procs/fns
990     IF single_line% : finish%(items%) = this_line% : inprocfn% = 0
1000    items% = items% + 1 : REMark total number of procs+fns
1010    END REPEAT read_back
1020    CLOSE #3 : CLS : CLS #0 : REMark list to screen in 3 columns
1030    FOR a = 0 TO items% - 1
1040        INK 4 : AT a MOD 20,(26*(a DIV 20))+(a<9) : PRINT a+1; : INK 2
1050        IF type%(a) = 1 THEN PRINT 'P ' ; : ELSE PRINT 'F ' ; : END IF
1060        def_pos% = LEN(name$(a)) : IF def_pos% > 22 : def_pos% = 22
1070        INK 7 : PRINT name$(a,1 TO def_pos%);
1080    END FOR a
1090    CLS #0
1100    PRINT #0,'SELECT PROCEDURES/FUNCTIONS TO COPY (0 TO FINISH LIST)'
1110    REPEAT loop
1120        AT #0,1,0 : CLS #0,3 : INPUT #0,'ENTER NUMBER > ';t$
1130        IF t$ = '' OR t$ = '0' THEN EXIT loop
1140        num% = '0' & t$ : REMark some degree of protection
1150        IF num% >= 1 AND num% <= items% THEN
1160            num% = num% - 1 : selected%(num%) = NOT selected%(num%)
1170            AT num% MOD 20,(26*(num% DIV 20))+3 : REMark arrange in columns
1180            OVER -1 : INK 4 : PRINT '*' : INK 7 : OVER 0
1190        END IF
1200    END REPEAT loop
1210    no% = 0 : REMark are there any items selected ?
1220    FOR a = 0 TO items%-1 : IF selected%(a) : no% = no% + 1
1230    IF no% = 0 THEN
1240        CLS #0 : PRINT #0,'PRESS ESC TO QUIT, ANY OTHER KEY TO CONTINUE.'
```

definition. This is the reason why it does not work with nested definitions (one inside the other).

If the program happens to have the words 'DEFine PROCedure' or 'DEFine FuNction' or 'END DEFine' in quotes, it will think these are definitions. Ignore them when they are presented in the selection menu.

If the program encounters a new definition before it has detected the end of the previous one, it assumes the previous definition ends at the line before the new definition. This can happen if RETURNS are used to end of definitions instead of END DEFine.

Multiple conditional END DEFines can confuse the program. It will end a routine at the first one, and ignore subsequent ones. This is poor programming practice, if you want conditional ends to routines, you should IF...THE RETURN instead of IF...THE END DEFine.

The program does not mind 'loose' lines of code between definitions, although this is not good programming practice.

A more advanced, pointer driven version is available from DJC. It is pointer driven, so can be controlled with a mouse, and has many more features. You will need to have pointer environment and Jochen Merz's excellent Menu Extension software to run it. Details on (0248) 354023, or contact me via DJC's usual address.

Dilwyn Jones

```

1250 IF INKEY$(-1) = CHR$(27) THEN EXIT program : ELSE NEXT program
1260 END IF
1270 REMark read back through file, copying selected routines
1280 OPEN_IN #3,source$
1290 OPEN_NEW #4,dest$
1300 CLS : CLS #0 : PRINT #0,'Assembling new file ...'\Line ' ;
1310 item_no% = 0: done% = 0
1320 REPEAT loop
1330 IF EOF(#3) OR done% >= no% THEN EXIT loop
1340 INPUT #3,baseline$
1350 numlen% = (' ' INSTR baseline$)-1
1360 this_line% = baseline$( 1 TO numlen%)
1370 AT #0,1,5 : PRINT #0,this_line%
1380 IF this_line% < start%(item_no%) : NEXT loop
1390 IF selected%(item_no%) THEN
1400 REMark send this proc/fn to new file
1410 PRINT'Doing : ';name$(item_no%) TO longest%+10;'Lines ' ;
1420 PRINT start%(item_no%);'-';finish%(item_no%) TO longest%+28;'(' ;
1430 IF type%(item_no%)=1 : PRINT'PROCEDURE)': ELSE PRINT'FUNCTION)'
1440 PRINT #4,baseline$:done%=done%+1
1450 END IF
1460 REPEAT read_back
1470 IF EOF(#3) : EXIT loop
1480 IF this_line% >= finish%(item_no%) THEN EXIT read_back
1490 INPUT #3,baseline$ : numlen% = (' ' INSTR baseline$) - 1
1500 this_line% = baseline$(1 TO numlen%)
1510 AT #0,1,5 : PRINT #0,this_line%
1520 IF selected%(item_no%) : PRINT #4,baseline$
1530 END REPEAT read_back
1540 item_no% = item_no% + 1
1550 END REPEAT loop
1560 CLOSE #3 : CLOSE #4 : CLS #0
1570 PRINT #0,'RUN COMPLETED, ESC TO QUIT, ANY OTHER KEY TO CONTINUE. ' ;
1580 IF INKEY$(-1) = CHR$(27) : EXIT program
1590 END REPEAT program
1600 PRINT #0,'PROGRAM FINISHED.' : PAUSE 50 : STOP

```

[FUNCTIONality is going to be a regular feature and will contain useful SuperBASIC FUNCTIONS or PROCEDURES that can be incorporated into any program. The above program PROCMAN can be used easily to keep these routines in one library simply extracting the routines you want to use in your programs. If you have any useful routines please do send them in so we can publish them in future articles. All that is required is the source code together with a Quill doc file, or REM statements in the code, giving a brief explanation on what the function or procedure does and how it works.

The source for PROCMAN is available on disk from QUO VADIS DESIGN. The cost is £2.00 for UK and EUROPE orders, £3.00 for any other country. This includes 3.5 DD media and postage and packaging. Alternatively UK readers can send 50p worth of UK stamps together with a 3.5 DD, or microdrive, and a return stamped addressed envelope.]

CHOOSING PRINTERS

The personal computers revolution has been accompanied with major advances in personal printer technology. Only five years ago, the majority of printers in use with personal computers were of the 9-pin dot matrix variety. More advanced 24-pin models were yet to become affordable alternatives and laser printers were prohibitively expensive for personal use. In the past few years, manufacturers of personal printers have aimed to achieve output quality comparable with books and magazines. This aim still remains to be fulfilled, but major advances have been made on the way.

Resolution is the yardstick by which print quality for books and magazines, as well as the visual sharpness of photographs and television images is measured. If a photograph of parallel hairlines is examined under a magnifying glass and lines of as little as 1/100" in thickness are distinctly visible, the photograph is said to have a resolution of at least 100 lines per inch. In most areas of photography such levels of resolution are considered extremely high but for printed text and line drawings they are far below the current professional standards. Quality books and magazines boast text resolutions of 600 lines per inch and above. Until recently, photo-typesetting was used to produce the text for those publications but nowadays the task is performed by laser typesetting machines utilising digital (computer generated) image technology.

With digital technology, images are stored and processed as a series of dots on a very fine grid, with each dot having its own colour or greyness value. When the grid and the size of dots become very fine, the eye can no longer distinguish the dots as separate items. For printed text, the dots are either black (ink) or white (paper). A resolution of 600 lines per inch requires a grid spaced at 1/1200" where each dot can be black or white. With digital technology, resolution is normally measured in terms of total number of dots per inch thus 600 lines per inch (lpi) correspond with 1200 dots per inch (dpi). Today, ink jet bubble jet, and cheaper laser printers boast resolutions of 300 or 360 dpi. Text output from those printers, however grainy compared to digital typesetter output is reasonably well formed for most purposes.

Although 24-pin printers work at 360 dots per

inch, they do not achieve the same results as laser, bubble jet and ink jet printers working at the same or lower dpi settings. This apparent anomaly is due to the size of the dots: Whereas the dots produced by bubble jet and ink jet printers are as small as suggested by the dpi value, i.e. about 1/300" in diameter, the dots produced by 24 pin printers are about twice the size. The lines per inch (lpi) resolution offered by a 24-pin printer is actually less than 90, compared with 150 for a cheap laser printer.

Currently, there are three main ink based technologies, developed by Hewlett-Packard, Canon and Epson respectively. Bubble jet printers based on the Canon technology are also made by several other manufacturers. Although Hewlett-Packard printers print at 300 dpi, compared with 360 dpi for printers from the other companies, the print quality achieved with the three technologies depends more on the combination of paper and ink cartridge used than the resolution--in broad terms, the results are quite similar. All these printers are virtually silent in operation and very fast in comparison with dot-matrix printers. When choosing among ink based printers two areas should be carefully considered: one area consists of the physical properties of the printer, i.e., paper feed and size, portability, support for printing envelopes and sheets of labels; the other area is the printer command language and the number of available founts. Comparisons in the first area are quite straightforward as the features are independent from the computer that is used with the printer. The second area needs more careful consideration since it does make a huge difference whether the printer is used with a PC or with a QL.

Founts (fonts or typefaces) are either built into the printer or sent to it from the computer as graphic images. Unlike PC's, the QL does not feature a parallel printer port as standard and data has to be sent to the printer via a serial port at a fraction of the speed. A serial to parallel interface is normally used between the QL and the printer but it does not improve the speed. This is not a problem when text is printed using the printer's built-in founts, as the amount of data required for a page is small enough to be transmitted in a few second. But when text is sent as a graphic image, printing times are prohibitively long for documents of

more than a few pages. Thus the number and the range of sizes of the founts built into the printer is of much greater importance when used with the QL than with the PC.

Fount support varies among the three groups of ink based printers. Canon bubble jet printers such as the BJ10sx work in three different print-languages. In the Epson emulation mode which offers the widest selection of founts, they feature two or more basic bit-mapped founts which can be printed at a range of sizes. Smaller print sizes are produced by printing only two out three or one out of two adjacent dots. Larger print sizes are achieved by repeating the dots twice, thus introducing a degree of jaggedness. Recent Hewlett-Packard printers, such as the Deskjet 510 and portable models, feature two fixed pitched founts plus two proportional founts in a range of sizes up to 14 pt. Larger proportional sizes have been individually designed without repeating the dots and thus look smoother. Epson Stylus printers feature the same method of printing founts as the Canon with 5 basic bit-mapped founts. But in addition they support four founts that are scaled inside the printer to produce a large variety of sizes (from 8pt to 32pt). These scalable founts do not look jagged in larger

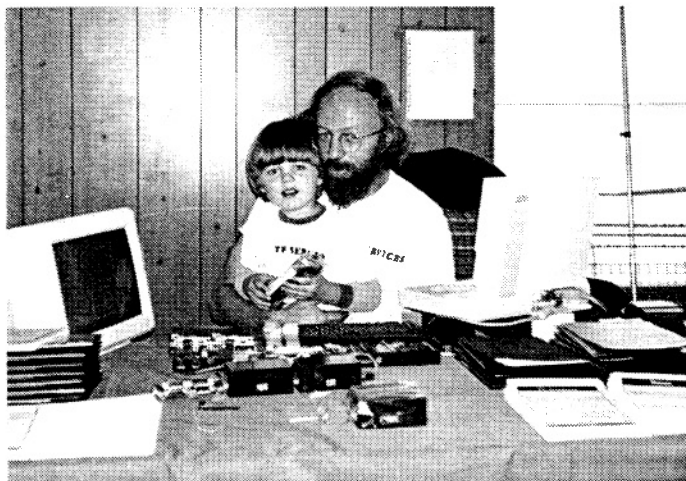
sizes but in smaller sizes they do not look as sharp as Hewlett-Packard founts which have been designed dot-by-dot for each size. Hewlett-Packard printers also feature landscape founts, allowing text to be printed along the length of an A4 sheet of paper. On the other hand, Canon and Epson printers allow founts to be printed in outlined or shadowed modes. With so many variations, it is a good idea to compare print samples of a range of built-in founts for each printer before making a decision.

With current prices for bubble jet and ink jet printers being roughly the same as 24-pin printer, there is no point buying a 24-pin printer unless you have a special requirement for printing on multiple forms or perforated paper. If your budget extends to over £500, a laser printer would be the obvious choice. The picture is much clearer in this area. Hewlett-Packard has been setting the laser printing standard and everybody else has been following. The current Laserjet 4 and 4L models combine a large variety of professional quality built-in founts with excellent print quality and paper handling options.

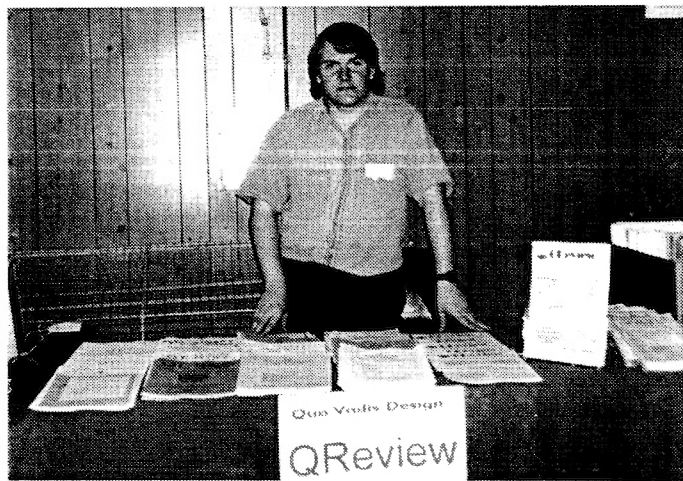
Fred Toussi



PICTURES AT A WORKSHOP



Tony Firshman of TF Services



Bruce Nicholls of Quo Vadis Design

PHOTOGRAPHS COURTESY OF JIM BUIK

QUIZ MASTER 2

The above enthralling game, when purchased new from Dilwyn Jones Computing, comes on two disks accompanied by a one double sided sheet, close printed instruction manual. The manual is supplemented by two 'doc' files, disk 1 holding an "UPDATES_doc and disk 2 having a "MOD2ADD_doc".

Disk 1 contains the updated initial games program together with one module of 300 questions and is complete in itself. Disk 2 is an addition to the game in that it contains another question module plus instructions on how to add it to the program, selecting either 1 or 2 in addition to a secondary 'boot' program that supplants the original boot in order to incorporate and access other question modules of which you might well be the composer. More on this later.

The disks ought to arrive in a write-protected state and if not, must be promptly put into that condition. As always, it is advised that backups should be made immediately before anything else is done. The manual tells you how to do so with the COPY_bas program supplied. Thereafter, the use of the backups for playing the game is strongly advised. In any case, the program cannot be run in a 'write-protected' state as the program deletes the initial module and substitutes the selected module for current use. In order to do this the program must be able to write to the disk, so do use backups only to play the game.

The program is also available on microdrive and anything said herein relating to disks refers also to mdvs.

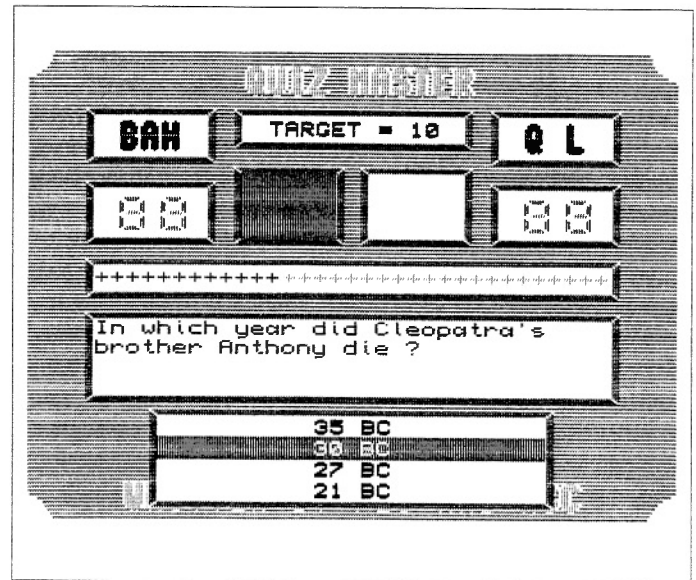
On starting the game by either the automatic boot or by LRUNning the boot, you are presented with an option menu that will allow you to choose a one player game, (against the clock although the scoreboard confusingly tells you it is the QL that plays against you, ie., the QL is awarded the point if you don't know the answer), or a two player game, at a skill level which determines how much time, in seconds, is given to the player, (the scores of which, if lost, are not awarded to the other player despite what the instruction sheet says), and the number of questions needed by a player to win may be set to either 10, 20 or 30. You are given the opportunity to turn-off an infuriating jingle passing for exciting background music, then a 'start game' option and lastly a quit option to return to SuperBasic or to play another game.

Upon selecting the 'start game' option another screen is presented requiring you to give a three-letter name, to identify yourself, using the up/down cursor keys and selecting the chosen letter of the alphabet with the space key. A single letter name may be chosen by selecting

blanks for the second and third letter. The one-player game automatically places the QL as the second player.

Immediately, another screen pops up onto the screen and proceeds to throw a question at you. This is the central screen of the game and is the scoreboard upon which should be shown information on where you stand at any given moment. It does... if only you were able to read the information quickly enough before the next question is spelt out to you and it again flashes up that you've 'run out of time'. I had to <SLUG 15> my Gold Card before getting a chance to play anything.

The question is spelled out, letter by letter, and as soon as you think you know the answer, press your 'answer'



key, <CTRL for you and ALT for your opponent>, whereupon a line of crosses start 'ticking-off' from the right-hand side of the screen and at the same time a window with a multi-option of four possible 'answers' are shown together with a number 1, 2, 3 and 4 one of which you select. It gets just a little tricky at this point in the choice of keys to press in that CTRL (or ALT) first has to be pressed followed immediately by moving the highlight with the up or down keys onto your optional choice of one of the four answers, (as the crosses are being rapidly eliminated), then SPACE-bar to select choice,(and if you're playing an opponent heaven only knows what his fingers are doing at the same time), and by such easy routes to success, you're lucky if you walk away from a game with all your fingers intact, let alone win.

Unfortunately, (or otherwise), the scoreboard disappears at the end of the game and another screen appears which states baldly that either CAT has won or that DOG is the winner leaving you wondering just

what kind of shenanigans has been going on behind the screen because the scoreboard isn't there to let you know who got which score; you have to accept that ten questions, (or 20 or 30), have been answered correctly.

There is a moment in the game when you might catch a breath and it is when a wrong answer has been chosen whereupon the game now pauses by asking you to 'press a key' to continue; take a deep breath before doing so.

You ought to enjoy the game for the unavoidable confusion and fury when playing a two-handed game accompanied by the belly-aching laughing when the cock-ups occur and all at a cost of only pennies but there remains one or even two excellent enhancements to this program. The first is being able to construct and add modules of up to 300 questions of either general or specialised knowledge and is particularly simple to do in that you type out in an Editor the question followed by the four possible answers together with their numbers, followed by the singular number of the correct answer, ie., six lines to each question. The program sorts out the rest.

However, the instruction sheet forgets to tell you just how to add this module to the

program and that is done by first editing the program wherein line ... INSTR "12" is altered to read INSTR "123" or "1234" or "12345" and you name the new module to read QUIZ_mod4 or QUIZ_mod5 etc; you can continue with the alphabet if necessary. At the same time the module choice screen is altered in this same manner to include the new modules so instead of, as now, reading, ... modules 1 or 2 it will read, 1 to whatever.

Now, with this infinite expansion potential comes the second enhancement which is the possibility of extending this program to become a test(exam) paper which you can fairly easily add by way of appropriate procedures to ask any kind of question, even a free format one, (ie. prose), and get the program to 'mark up' the paper so that you can provide your children with the most advanced educational facility, costing in excess of fifteen hundred pounds in the ubiquitous PC field, giving a head-start on how to understand and handle text-books which is the greatest hurdle a student has to face during school years. Amazing isn't it? And all the hard work has been done in this basic program obtainable for next to nothing.

John Reeves

COMPETITION

Win a copy of **Perfection**, Digital Precision's lightning fast word processor in this joint QReview and Digital Precision competition.

Digital Precision is offering a copy of Perfection word processor worth £59.99 to the reader who can submit the most enterprising Editor Command File.

What can an Editor Command File do? Literally it can be used to format anything. Two of the many uses of this programming language have been to assemble a file loaded in the Editor and to translate a SuperBASIC program loaded in the Editor to C.

Submissions for the competition will be Judged on their usefulness and then technical merit, the competition winner will be chosen by Bruce Nicholls. Any submissions to the competition may be used in the magazine. If enough submissions are received, a Public Domain disk compilation of the command files may be collated. Please indicate if you would allow your command file to be included in such a disk.

Please send your submissions on microdrive or 3.5" DD disk format with an accompanying Editor file detailing its use, please include any demonstration files if needed, and send it to QReview Editor Competition, Quo Vadis Design, 57 Shaftesbury Road, Romford, Essex, RM1 2QJ. If you wish to receive your disk or microdrive back please enclose a SAE. The closing date for submissions is February 15th 1994, enough time to get writing.

Why the Editor? Editor SE can do a few things Perfection can't, so the ideal combination is to have both. As a result, if you order Editor SE at the same time as Perfection, you can have Editor SE at half price (the normal price is £49.95).

PUBLIC DOMAIN

Since my last article the next version of the C68 'C' Compiler has been released (Version 4). This has a host of new features (see an extract of them below) and corrects all known bugs [undocumented features in the trade] that existed in the previous versions. I have also listed a few recent or imminent programs to my library below. Please see my advert for further details on ordering.

New Features

1. The main C68 program upgraded. Significant new levels of error checking and ANSI'fication added. Documentation for the C68 program extensively revised - in particular all error/warning messages now documented.
2. The **STDIO** package upgraded to release 2.6 of Earl Chew's **STDIO** package (previously used v2.1).
3. The program start-up code should now detect the presence of processor chips that support instruction caching, and if necessary disables caching while the program relocation takes place. This allows for correct operation on 68030 and 68040 based systems (such as ST/QL's with accelerator boards or the Miracle QXL card).
4. A large number of the routines in **LIBQDOS_A** that used to set `_oserr` no longer do so. Documentation updated accordingly.
5. The routines in **LIBQDOS_A** that map directly onto QDOS traps and QDOS vectors have had additional entry points added so that they can also be called by the SMS variant of the name. Documentation updated accordingly. The **SMS_H** header file created to include SMS specific definitions.
6. The following new routines added to the **LIBC_A** library: `cn_date()`, `cn_day()`, `qinstrn()`, `ioppick()`, `mktime()` (Contributed by Peter Sulzer).
7. Routines added to the **LIBQDOS_A** library to provide some string handling routines that are analogous to the C ones, but work instead on QDOS format strings. The routines added are: `qstrcat()`, `qstrncat()`, `qstrchr()`, `qstrcmp()`, `qstrncmp()`, `qstrcpy()`, `qstrncpy()`, `qstricmp()`, `qstrnicmp()`, `qstrlen()`
8. Routines added to the **LIBQDOS_A** library to access the QDOS queue handling vectors. Routines added are: `io_qeof()`, `io_serio()`, `io_qin()`, `io_serq()`, `io_qout()`, `io_qset()`, `io_qtest()`
9. The following routines for adding standard QDOS traps and vectors added to the **LIBQDOS_A** library and documentation amended accordingly: `mm_alloc()`, `mm_lnkfr()`, `mm_alchp()`, `mm_rechp()`, `mt_alres()`, `mt_reres()`
10. New library calls required for ANSI compatibility included in the **LIBC_A** library. In most cases they are not very functional, but they satisfy the minimum requirements: `setlocale()`, `localeconv()`, `mblen()`, `mbtowc()`, `mbstowcs()`, `wctomb()`, `wcstombs()`
11. The **TIME** package in the **LIBC_A** library upgraded to full ANSI and POSIX compatibility using Ralf Wenk's PD routines. As well as upgrading existing routines, this added the following new ones: `difftime()`, `strftime()`, `tzset()`
The **TZ** environment variable is now used by the time routines.
12. New calls for accessing the **THING** sub-system added to the **LIBQDOS_A** library. These routines are always available under SMS, but need support for the **THING** system loaded under QDOS. The calls are: `sms_fthg()`, `sms_lthg()`, `sms_nthg()`, `sms_nthu()`, `sms_rthg()`, `sms_uthg()`, `sms_zthg()`
13. The **LD** linker will now no longer automatically output messages

to the screen except for errors. The `-v` flag will restore the previous behaviour.

14. The **PACKHDR** utility added to the C68 distribution. This is used to producing compressed header files for the main **RUNTIME 1** system disk.

XLisp V2.1d

I have recently received a copy of this program which is an upgrade of **Disk Special 3 (XLisp V1.4a)**, this program is now much larger than the original and will be available on two disks instead of the original one disk version.

ADVSYS - An Adventure Writing System

ADVSYS is a special purpose programming language that was specifically designed to be used to write computer text adventure games. It includes a facility for defining the kinds of objects that are common in adventures. Some objects represent locations on the game map, some objects representing things that the player can find while exploring the adventure world, and some objects represent other characters that the adventurer can encounter during his or her journeys. The adventure language also provides a facility to define actions. Actions are short sections of code that determine what happens in response to a command from the player. These two concepts, "objects" and "actions" form the basis for the adventure language.

The Stripper

No this is not what you think it is.... This is a program that enables you to strip out control codes from a **Quill_DOC** file, thus turning it into a **TRUE** plain text file. It was written by Dilwyn Jones.

QXL Format

This utility written by Dave Walker is for **QXL** users (it also works on ordinary **QLs**) who don't have any **QL** formatted disks with them at that crucial moment. This program takes a formatted **PC** disk and converts it into a **QL** disk. It resides on **PD14**.

QL World Index

This very useful index has been updated to include all articles up until September 1993. It is available on **PD7**.

I have lots more programs kindly sent into me for inclusion within the Library, too many to mention here. I apologise for the delay in getting them put into the Library, and I'd like to ensure the Authors that they will be included eventually. The reason for the delay is that I am heavily involved in developing new hardware products for the **QL (FAST-NET and IDE Hard Disk Interface)**. These projects seem to take a rather large portion of my time. If there is anyone who would like to assist me as a Quality Controller/Tester of **PD Software** I would be most grateful. I am afraid I will not be able to pay for your help in cash, but I am sure I can pay in other ways i.e. goods.

Thats all Folks

Ron Dunnett

Greetings Fellow PD. Users,

Well since the last issue of QREVIEW there has been quite a lot happening up here North of Watford! Numerous S.J.P.D. disks have been updated and there have been quite a few new additions to the Library. I will list the updates first.

SJS 9: Molecular Graphics, by Mark Knight is now version 5.11. and is now fully GOLD CARD compatible.

SJS 22: Spectator, by Carlo Delhez has reached version 1.35. This version now emulates both 128K & 48K Spectrum.

SJS 32: Lyapunov Space, by Per-Erik Forssen. This Fractals disk has been updated to Version 0.74.

SJS 44: QeM. The terminal emulator and communications program by Jonathan Hudson has been updated to version 3.7.

SJS 47: QL HACKERS JOURNAL disk now contains all issues from issue 1 to issue 14 of this informative disk based QL magazine.

SJS 48: QL-HARD DRIVE. This has now reached version 2.53.

SJS 52: DAVID WALKER DEMO DISK. Now contains FLPClone 1.17.

SJS 56: QL-REXX. Now includes "C" source code in zipped format complete with un-zipping utility.

SJS 57: DME. This pointer text editor has reached release 1.43.3.

SJS 62: DBAS. This programmable database is now up to version 2.25.

AMIGA QDOS: This is now release 3.21. updated to print on WorkBench 2 & 3.

I have added 4 new disks of assorted QL Public Domain & Shareware. These disks contain a collection of Utilities including a sideways printer utility for Abacus spreadsheets, A utility for removing embedded control codes from text files, A one time commercial utility from "UTILITY ROOM SOFTWARE" for reading MS-DOS disks. Hard-disk back up programs. Included on the disks are some games to help pass away the long winter hours, GOMUKU, TETRIS and WIPEOUT will keep most games players busy. For the "TECHIES" one of the disks contains a version of the programming language "cFORTH", I can even offer a text file of THE MAGNA CARTA which has been translated into English. This takes the total of assorted disks up to 35. AND STILL GROWING FAST!!

As for the specialist list, there have been one or two additions to the list namely:-

SJS 64: ADVENTURE 93. This is a two disks package and contains a collection of adventure games from Alan Pemberton via S.Q.L.U.G. Disk 1 contains ADVENTURE PLAYTIME, FROM THE TOWERS

OF VALAGON, STARPLOD and YE CLASSICAL-TYPE ADVENTURE. Disk 2 contains THE VOYAGE OF THE BEANO.

SJS 65: SALVADOR MERINO SHAREWARE DISK. All these programs originate from Spain from the author Salvador Merino. The disk contains Calc, a programmable calculator. WIPEOUT, a space invaders type of game. eFORTH, which is an implementation of FORTH for the QL and FOTO-DBASE. This is a database of names and addresses but with a difference, Digitised pictures can be included in each file.

SJS 66: GZIP Release 1.0.7. This is a utility to archive (compress) files, unlike Zip or Arc this will archive single programs. This port-over is the work of Richard Kettlewell.

I have also been busy converting 20 disks of classic literature over to the QL. These disks contain the works of literary greats like Shakespeare, Hommer, Mark Twain & Lewis Carrol. Each disk has a self loading boot program along with QED, a text editor. These disks are listed on my catalogue disk.

There have been one or two comments on telephone answer machines in the QL press recently. As most of my customers know I am guilty of owning and using one of these dastardly contraptions. The reason that I have HAD to get one is that I am a Health care worker (AKA MALE NURSE!) working nights mainly at weekends, I have to use an answer machine so I can get some of that precious commodity that most people call S L E E P. I can not expect my wife or children to answer your requests, so the only thing left was to employ a servant or get the dreaded answer machine. On nurses salary the servant was out!!!!

I have also been asked why I do not do live appearances at shows etc. Well being a devout pedestrian for the past 21ish years I have never learned the art of driving. Yes, there are some of us that don't DRIVE. Whilst some suppliers manage to get to shows on bicycles it is very hard riding a bike with 150+ library disks, 100+ blank disks, QL, MONITOR etc. You also have to be fit to ride a bike and fitness is NOT one of my strong points, carrying 10 disks from the local computer shop puts me in bed for a week. So, alas I am strictly MAIL ORDER.

Well that's all for this issue but before I hang up the quill and rest my weary bones, DON'T FORGET that you can get a more descriptive list of the software that I offer by sending a QL formatted disk and return postage or 4 x 1st class stamps for a FREE catalogue disk. All other disks carry a copy charge of £1.00p per disk. Pre-copied disks are available at £1.75p inclusive of media & return postage.

Steve Johnson. (S.J.P.D. SOFTWARE)

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